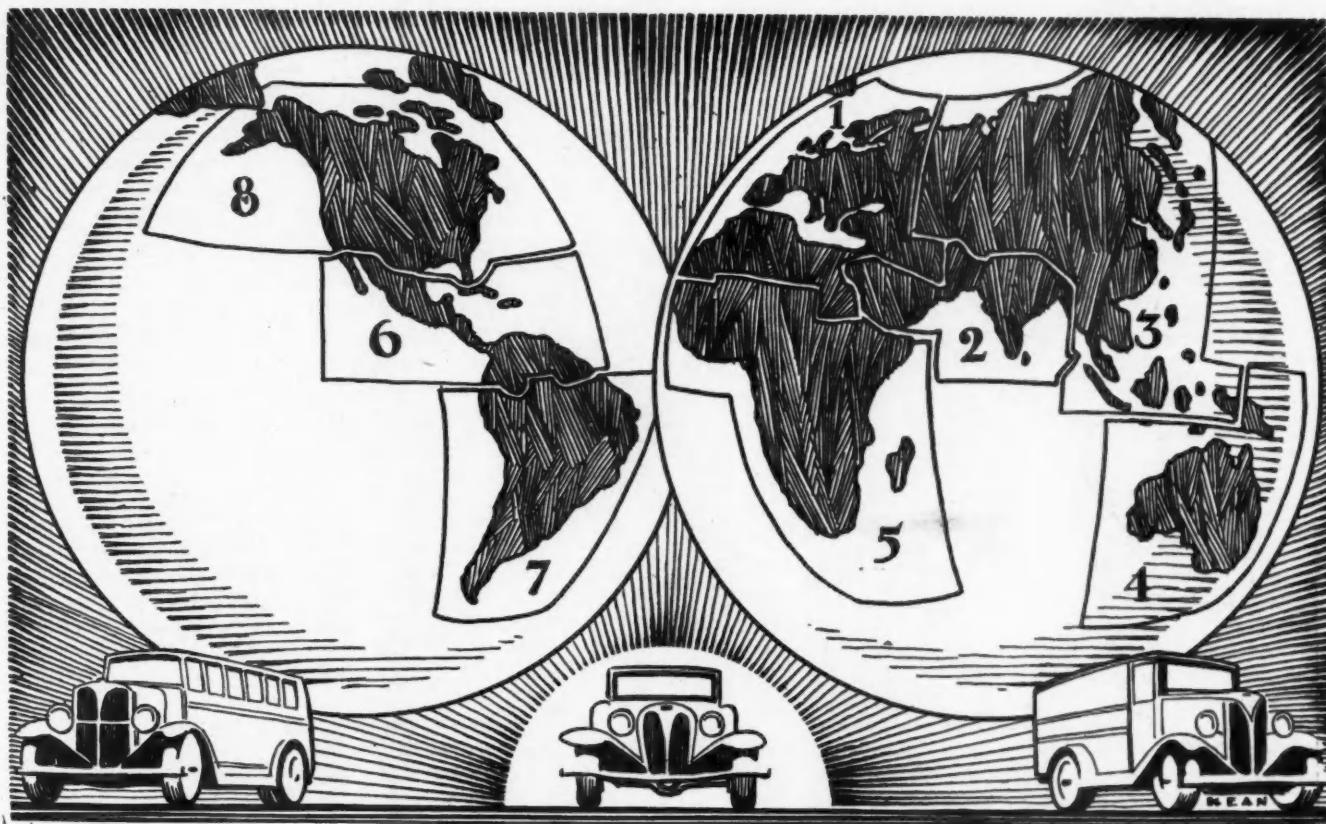


AUTOMOTIVE INDUSTRIES

VOLUME 63

AUGUST 30, 1930

NUMBER 9



Factory export representatives will gather trade data from eight zones for the N.A.C.C. as part of plan for increasing overseas buying

Export Leaders Map World Trade Effort

Comprehensive study to be made of foreign business conditions by committee of the N. A. C. C. + + + + +

By Leslie Peat

AS a practical expedient in the face of reduced exports and to establish something of a standard practice for the future, the automobile manufacturers interested in foreign trade are showing increased activity this year. Individual export executives as well as the Export Committee of the National Automobile Chamber of Commerce are mapping out ambitious plans to gather more

information about general business conditions, importation outlook, automobile stocks

and dealers' estimates of requirements overseas.

Robert C. Graham, who succeeded John N. Willys as chairman of the Export Committee; H. H. Rice, chairman of the N.A.C.C. legislative committee, and staff members of the chamber were in Washington recently to acquaint Department of Commerce officials



Robert C. Graham, chairman, N.A.C.C. Export Committee, who heads the present foreign trade development program for the automobile manufacturers + + + +

of plans for a more comprehensive study of conditions abroad.

It seems likely that the first step to obtain information about foreign market conditions will be dividing the globe into eight zones or divisions, and gathering, through factory export representatives, data in each division about sales and stocks on hand of cars, trucks, parts and replacement parts, estimated requirements, general business conditions interpreted with relation to the automobile market, and reports on costs of doing business abroad.

Such information can be assembled by the committee and distributed to members to serve the manufacturers in making up their production and export schedules.

General business conditions as viewed by trained export men in every part of the world would serve to give the industry a composite picture of foreign trade conditions which would be of tremendous importance in considering company policies.

Pending the appointment of the Tariff Commission, the industry finds the export outlook healthy. Mr. Graham believes that the gradual disposal of stocks

of cars overseas warrants a more promising outlook in the export markets.

There has been during the last nine months a recession in the purchasing power of people throughout the world due to the drop of the prices of primary products like wheat, cotton and copper which serve as the principal medium of many foreign people in acquiring automobiles.

Economies effected by American manufacturers and passed on to foreign consumers in the form of greater

values of motor transportation are gradually having the result that a greater number of bales of cotton, bushels of wheat and similar com-



Arvid L. Frank, sales manager of Studebaker-Pierce-Arrow Export Corp., who serves with Mr. Mitchell and Mr. Sides on the new N.A.C.C. Export Trade Committee + + +



W. Ledyard Mitchell, vice-president, Chrysler Corp., who is chairman of Export Trade Analysis Committee

Fred B. Sides, export manager, Hupp Motor Car Corp., who serves on the new committee



modities are now required in obtaining automobiles than was the case in the beginning of last year.

This adjustment of American automobiles to the purchasing power of foreign people based on the income they derive from the sale of their own products is making for a healthy fundamental situation and with old stocks of cars liquidated may stimulate a gradual upward trend in exports.

Already here are some brightening spots in the export horizon. Dealers in Scandinavia appear to enjoy a reasonable volume of business. Ecuador is showing signs of improvement as result of better prices which now prevail for cocoa, its principal product. Mexico has been showing very far-sighted attitude toward motor transport developments, and there are signs of increases above the present volume which has been quite attractive right along.

Disturbances in India although damping are not stopping business entirely of dealers in Bombay and Delhi. Some orders are coming through from Australia, even though general conditions are reported as being very poor.

The total foreign consumption of American cars in Canada and other foreign countries averaged about 72,000 in April and May. This figure, which includes American cars manufactured and assembled abroad or exported complete from the United States, would make, if repeated during the full 12 months of this year, a total export demand of 900,000 cars, or about 10 per cent less than the record established in 1929.

The recent general elections in Canada disclosed the sentiment of the people generally in regards to us in the matter of tariffs. Spokesmen for the victorious conservative party held that there are ample possibilities of further reduction of the United States \$100,000,000-a-month trade with its best customer.

Advocacy of the Empire free trade scheme by the conservatives was threatened. This plan embodies small tariffs between the British Dominions and territories, with much higher tariffs against other countries, such as the United States.

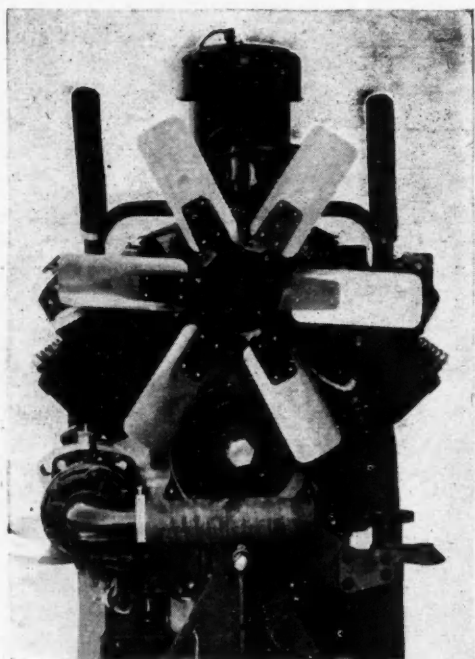
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North American highway engineering is rapidly developing the South American market for automobiles made in the United States

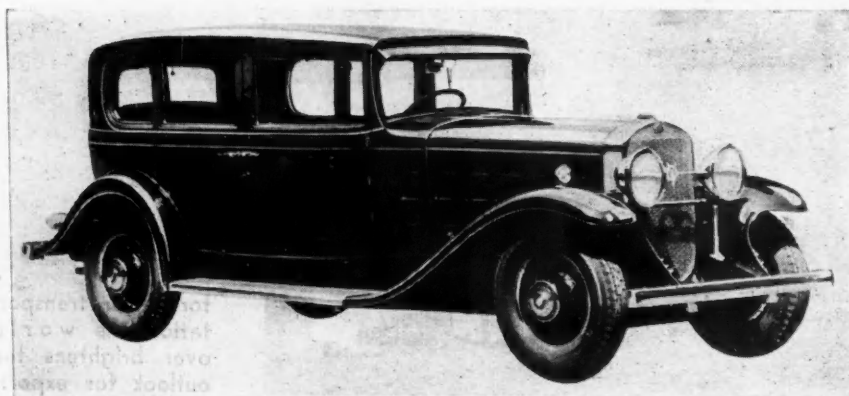


Increasing demands for faster transportation the world over brightens the outlook for exports



Front view of the Cadillac eight engine showing the timing cover with two legs for engine supports. Note the intake silencer over the V of the engine. The upper half of the aluminum alloy crankcase is now polished + + + + +

A NNOUNCEMENT of the introduction of the V-12 line of passenger cars, and of new models on the Cadillac and LaSalle eight-cylinder series, brings the offering of the Cadillac Motor Car Co. to a total of four different chassis lines, materially broadened in price range both in the upper and lower direction. At the upper end of the range is the V-16, announced last January. Next in order is the V-12, occupying a price range below the V-16 down to approximately the higher-priced models of the Cadillac V-8. The latter has had its prices materially reduced, the cuts ranging from \$600 to \$905. Below this again is the LaSalle V-8 series, with price reductions ranging from \$180 to \$750. The range of prices starts at



August 30, 1930

V-12 Completes

Announcement of 1931 models features interchangeability of parts upward from LaSalle to the V-16

Four chassis groups priced from \$2,195 to \$9,700 + + + + +

By Athel F. Denham

\$2,195 for the LaSalle coupe and goes up to \$9,700 for the V-16 town brougham.

Just as the new 12-cylinder Cadillac fits into a price range intermediate of the 8 and 16-cylinder series, so the cars are found to have some characteristics of both lines. The new 12-cylinder engine is virtually a replica of the 16, with two cylinders eliminated from each bank. On the other hand, axles, transmissions and clutches are virtually identical with those of the Cadillac V-8. Bodies are similarly midway between the 8 and 16-cylinder models. External body construction, and, to a good extent, appearance, is notably Cadillac V-8. Body interiors, on the other hand, are more of the character of the V-16, interior fittings and appointments being by Fleetwood. Wheelbase of the new V-12 is 140 in. for all except the seven-passenger bodies, which are mounted on a 143-in. wheelbase.

In spite of the radical price reductions, the new Cadillac and LaSalle eights have a number of added merchandising features. Carburetor intake mufflers on both models, a larger engine on the LaSalle, increased performance on both models, due to the higher power on the LaSalle, and the lower weight on the Cadillac, new steering gears on both cars, entirely

new bodies on the Cadillac, metal spring covers on both models, increased number of cross-members on the Cadillac, which also has a five-point powerplant mounting, lower (numerically) axle ratios and transmission ratios, etc., are some of these features.

New body lines characterize the 1930 Cadillac V-8's. Note how the body follows the frame side rail to eliminate the customary ledge + + + + +

Cadillac Range in Multi-Cylinder Line

Merchandising Plans

Type of Advertising

Dignified campaign in 23 higher grade magazines on regular schedules. Seasonal schedules in 152 cities, in newspapers.

6 radio concerts on General Motors hour.

Direct advertising available to dealers on all four lines for 12 months.

Used car advertising in certain magazines selling the integrity of the dealer.

Preceding Model

Announcement Date

V-8sSept. 16, 1929
V-16Jan. 4, 1929

Estimated Number of

Dealers Handling New Line700

Sales Records

Previous Models

V-8s25,991
V-162,633

Both Cadillac eight and LaSalle models now come on a 134-in. wheelbase. Both cars now have the same size engine.

The Cadillac eight has been quite extensively changed in appearance. Externally there are now to be found single-bar chrome-plated bumpers and a grill in front of the radiator as on the V-16, hood ventilator doors, improved sheet metal lines especially at the front end, where the radiator and side splashers are formed out of a single stamping in an unbroken curve, Cadillac escutcheons mounted between the headlamps on an auxiliary curved headlamp tie-bar and new fender lines. The bodies moreover follow closely the line of the frame side rail up to the middle of the cowl, thereby eliminating the customary ledge and overhang at the side of the body and making for more smoothly flowing body lines.

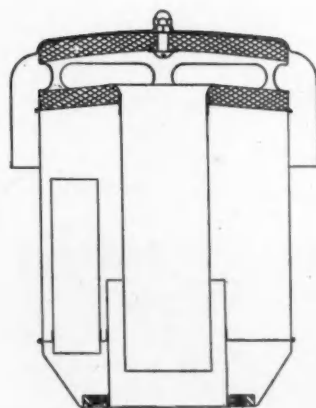
Simplicity is the keynote of the interiors of the

new Cadillac eights. Upholstery, of which the usual variety of selections is available in Bedford cord or broadcloth, is unpleated. Instruments are grouped in a single panel, with direct shielded illumination. Interior type sun visors are a new feature for the Cadillac eight.

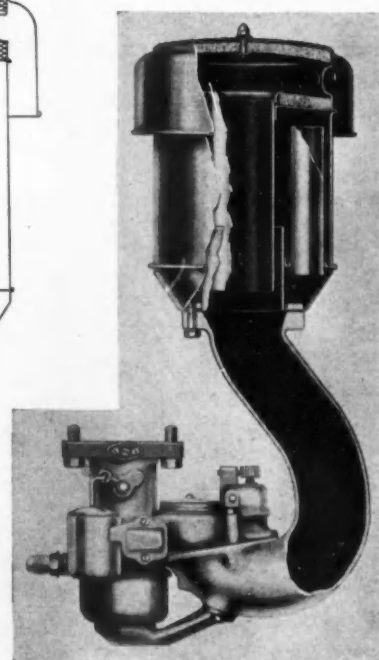
Comfort has received further attention in the new Cadillacs. Aside from the adoption of an intake muffler manufactured to Cadillac specifications by AC Spark Plug Co., noise reduction has been further achieved by the insulation used in the bodies.

Driving comfort has been enhanced by the adoption of a new steering gear and increasing the ratio to 17 to 1 for easier handling. The adoption of larger rear windows for increased visibility also is an important consideration in this respect. The front pillars of doors are now sloped back at a slight angle above the belt, to enable a reduction in the total width of the "blind spot" at the front pillars, in view of the use of sloping windshields.

Engine appearance has been improved by polishing the aluminum upper half of the crankcase. The six-bladed aluminum fan is of course also polished. Other engine parts, when not plated, are finished in either



Intake muffler on the new Cadillacs with re-designed carburetor to accommodate it. A similar unit is used on the LaSalle engine. Note the use of felt in the air intake to dampen high frequency manifold noises + +



Partial Specifications Cadillac-LaSalle Lines

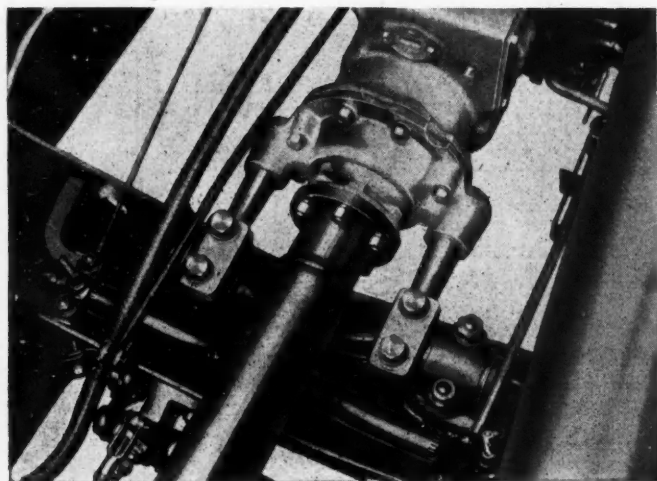
	V-16	V-12	V-8	LaSalle
Model	No. 452	No. 370	No. 355	No. 345
Engine bore	3	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$ in.
Displacement	452 cu. in.	368	353	353 cu. in.
Taxable hp.	57.5	46.9	36.45	36.45
Max. hp. at r.p.m.	165—3200	135—3400	95—3000	95—3000
Standard compression ratio ..	5.5 to 1	5.5 to 1	5.35 to 1	5.35 to 1
Carburetor intake muffler ..	yes	yes	yes	yes
Min. road clearance	8 $\frac{3}{4}$ in.	V-8 7 23/32 in.	7 23/32 in.	7 23/32 in.
Standard rear axle ratio	4.39	4.39 V-16	4.75 and 4.39	4.75 and 4.39
Wheelbase	148	140-143 in.	134 in.	134
Prices 5-passenger sedan ..	\$5,950	.....	\$2,795	\$2,295

black enamel, or vitreous enamel (manifolds).

While external appearance of the LaSalle eights has not undergone as great a change as the Cadillac, there are nevertheless a number of improvements. The oval molding formerly carried on the rear body panel has been eliminated. As on the Cadillacs, fibrous and felt materials are used for interior insulation of the bodies against noise and heat. The new intake silencers are also provided on the LaSalle, as are the new single-bar chrome-plated bumpers, grouped instrument mountings, including clock, fuel gage and engine thermometer, and a lever type of dash-mounted spark control lever with an arrow indicating the direction of "advance."

An item noted on both eights is the use of the front fender brace as a shielding conduit for the wiring to head and fender lamps. Radiator grills are available at extra cost on the LaSalle, as are metal tire covers with integrally mounted tire mirrors, for carrying of demountable wheels in fender well. The latter applies also to the Cadillac. LaSalle closed models have pleated upholstery.

The influence of developmental work on the V-16 is noted in the powerplant suspension of the Cadillac eights and twelves. At the front end of the eight, a new timing chain cover has been adopted having two legs resting on U-shaped diagonal frame braces, rubber insulated. A third support is of the trunnion type



and is located at the rear of the transmission, where it also serves to carry the torque tube stresses. Two further bonded rubber plate type supports are provided at the rear motor legs, mainly to stiffen the entire assembly, including the frame, in a horizontal plane at this point. The vertical and torsional load of the powerplant is carried almost entirely by the three aforementioned supports, resulting in a better load distribution, a stiffer front end and the treatment of the engine and transmission for absorption of power stresses as a single assembly rather than as two separate units.

Interior design of the Cadillac engine remains virtually unchanged. A minor improvement is the radial drilling of both lower ring grooves in the pistons, instead of only the lowest one as formerly. Compression ratio is slightly higher than last year, both for the standard and the optional (no extra cost) head. There are also slight modifications in the valve timing, connecting rod weight, etc. Bronze-backed babbitt-lined main bearings are now being used. The carburetor remains unchanged in principle but has been redesigned to accommodate the horn for the intake silencer connection, the latter being mounted above the engine.

The type of AC intake muffler used on the Cadillac-LaSalle models also differs in another respect from other types recently introduced, in that provision is made also for the damping out of high frequency oscillations in the manifold in addition to those of lower frequency for which the tuning devices are provided.

These higher frequency sound waves are materially dampened by the provision of felt lining on both sides of the air intake in the silencer. This intake, located at the top of the intake muffler, is of flat cylindrical shape with circumferential openings for the chamber.

The felt is attached to both the top and bottom surfaces of this chamber, the lower being in the form of an annulus, to allow for the opening from the intake chamber toward the carburetor.

As already noted, transmission ratios have been dropped somewhat for better acceleration conditions and to conform with the higher power-to-weight ratios in both cars. The same transmission is used in both eights. The same applies to the rear axles with their numerically lower ratios. Further parts made interchangeable-

The new Cadillac eight has a five point engine mounting similar to that on the V-16. This view shows the trunnion mounting at the rear of the transmission, which also carries the torque tube loads

able on both models include front and rear springs, brakes and steering gear. Spring mounting on the Cadillac eight differs from former practice, however, in that the rear springs are now mounted directly below the frame side rail, decreasing the twisting load on the rear of the frame. Eight-inch channels with seven cross-members are now used for the Cadillac frames.

Many of the changes and improvements made in the Cadillac chassis have been incorporated also in the LaSalle, these including the new steering gear, new intake silencer, new transmission and axle ratios, metal spring covers, etc. The outstanding mechanical change, however, is probably in the increase of engine bore and horsepower. Three-point suspension of the conventional type is retained on the LaSalle. Exhaust pipe diameter has been increased to the same size as on the Cadillac, while the changes on the latter in valve timing, main bearing material, pistons and compression ratio apply equally to this model.

Offered in 10 body styles, corresponding to the models on the Cadillac V-8, the 12-cylinder model has the general appearance of the new Cadillac eight. Radiator grills are standard, as are hood louver doors, with outside control. Twin horns are located below the headlights, as on the V-16, and the arched auxiliary headlamp tie-bar carries a V-12 emblem somewhat similar in design to that on the 16-cylinder model. Differences in appearance between the 12 and 8-cylinder bodies are relatively minor. On the V-12, the battery box is carried in the front end of the running board side splashers. Horizontal moldings, chrome-plated, in the center of these splashers also are a distinctive touch. The two tail lights are of the V-16 type. The hood of course is longer than that on the eight. External sun visors, of the cadet type, which supplement the interior visors, have chrome-plated beading around the edge. Window reveals are somewhat broader than on the eight-cylinder series and afford somewhat more contrast therefor.

As on the Cadillac V-8, simplicity is the keynote of the interior treatment. Like the V-16, the V-12 has engine turned aluminum panels to right and left of the instrument panel oval. Steering wheels are also of the V-16 type. Treadle type accelerator pedals are standard.

As has been mentioned, the engine is a 12-cylinder edition of the V-16. This applies not only to the inclusion of such features as the automatic hydraulic valve lash adjuster, and the thermostatically controlled crankcase ventilating system, but also to such parts as connecting rods and valve mechanism, etc., which parts are interchangeable with the 16-cylinder engine.

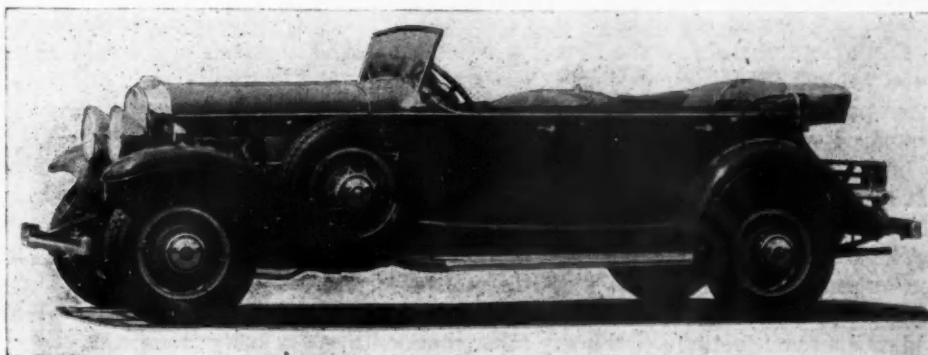
Cadillac 5-passenger phaeton. Note the rear fender line + + + + +



Exploded view of the new Saginaw Products steering gear used on both LaSalle and Cadillac. The lower column bearing is now of the taper roller type and ratio is increased to 17 to one

To enable such interchangeability, and to secure adequate room both in the Vee of the engine and outside of the blocks, a 45-deg. angle between the blocks conforms to the V-16 specifications. While the combination of this angle with a 120-deg. crankshaft might arouse some discussion as to the theoretical smoothness of the engine, due to variations in firing intervals, the answer is that the differences in the firing intervals are not noticeable in actual operation, even at idling speeds.

Bore and stroke of the engine is $3\frac{1}{8}$ by 4 in., corresponding to a piston displacement of 368 cu. in. With a compression ratio of 5.43 to 1 as standard, Cadillac states that this engine develops a peak of 135 hp. at 3400 r.p.m. Except for the difference in length, the number of throws of the crankshaft, and the angles,



even the crankshaft is identical with that of the V-16, as is evidenced by the use of the same size, 2 $\frac{5}{8}$ -in. steel-backed main bearings and 2 $\frac{1}{2}$ -in. crankpins. The same type of torsional vibration damper is also found on the front end of the crankshaft.

Carrying the V-16 design out further, the intake manifold is of the three-port type and carburetors are practically interchangeable with those on the V-16. The exhaust manifold differs somewhat from the V-16 in that the exhaust outlet is at the rear, but here again an expansion joint is found in the manifold. (There are two such joints on the V-16.)

A single vacuum tank is used in the V-12, supplemented by the customary Cadillac vacuum pump to secure adequate fuel supply. The car also carries two intake silencers, one for each block and carburetor, mounted on the front of the dash and connected to the carburetor air intakes at the center of the block by air horns. Curiously enough, Cadillac engineers state that the length of this pipe has not resulted in any increase in manifold vacuum, or loss in horsepower. The answer may possibly be found in the fact that the pipe, or air-horn, is of quite large diameter, and that the smooth flow of mixture obtained with this design, in addition to the smoothing out effect of the silencer itself, provide better distribution characteristics than otherwise normally obtainable.

Ignition of the V-12 is through a double breaker arm distributor with a six-lobe cam, virtually giving two distinct ignition systems, one for each block of six cylinders, since there are two coils also used. The latter as on the V-16 are recessed in the radiator top header tank to clean up the engine compartment and

also provide more nearly constant coil temperature conditions. Fan, water pump, etc., are interchangeable with those on the Cadillac V-16. Engine suspension is of the five-point type, as on both the 8 and 16.

Except for the use of heavier fingers and for the outside disks release, and bronze bushings on the guide studs for these disks, the clutch is interchangeable with the same unit on the Cadillac V-8. The transmission is completely interchangeable with that on the V-8, with the new gear ratios which have been adopted. The same applies to the axles including gear ratio. In the braking system, the layout of the V-16 braking system has been followed, this including the use of the vacuum assister. Brake drums, shoes and linings, however, are identical with those on the V-8.

Steering gears, except for the steering wheel, are derived from the new eight-cylinder line, as are wheels and tires. The battery is a 120-amp.-hr. Delco. Frames are of the same design as on the V-8, differing, of course, in dimensions. They have, however, the same triangulated bracing near the front end, where the frame side rails sweep outward to follow the body and are of double-drop design.

Torque tube drive is standard on this model as well as on the other Cadillacs. Springs are semi-elliptic, 40 by 2 $\frac{1}{4}$ in. at the front, and 58 by 2 $\frac{1}{4}$ in. at the rear, supplied with metal spring covers and outside rebound clips. Rear springs are mounted directly below the frame side rails and are fitted with compression type shackles. Double acting Delco-Remy hydraulic shock absorbers are standard. Front springs at the left are double shackled as on other Cadillac-LaSalle models.

Export Leaders Map World Trade Effort

(Continued from page 291)

A possibility was seen by some observers that the plan could not be made effective because of the flat embargoes imposed by Australia and New Zealand against all countries, including their sister dominions and Great Britain, on many leading commodities.

Officials at Washington would not comment publicly on the Canadian election result, but privately they pointed to a heavy decrease which has already occurred in trade with Canada. The world-wide drop in commodity prices, and the concurrent drop in purchasing power, are blamed for most of this decrease.

Exports to Canada in the first five months of 1930 were \$311,000,000, compared with \$422,000,000 in the same period of 1929. In May they were \$69,000,000, compared with \$97,000,000 in May, 1929.

Imports from Canada made a similar drop from \$203,000,000 in the first five months of 1929 to \$182,000,000 in the same period this year.

The United States now has great markets in Canada for automobiles and trucks, steel, farm implements, machinery, chemicals, wood, coal, petroleum, raw cotton and cotton manufactures, and many other commodities.

In 1929, exports to Canada were valued at \$868,057,000, a 21 per cent increase over the previous year. This year's figures so far indicate a decrease which will at least wipe out the gain.

Foreign trade statistics disclose that Canada is in an economic position where her reserve of money would not be depleted by shutting out United States goods through higher customs levies.

Her imports now are much larger than her exports to the United States and, in addition, Canada has been receiving an estimated \$208,000,000 a year from American automobile tourist trade, according to a Commerce Department survey.

Every tourist automobile in Canada means an average expenditure there of \$114 in American money, one semi-official survey showed. An estimated \$80,000,000 more was spent by rail and steamer tourists.

The present high tariff on automobiles in Canada has brought several leading American automobile makers to establish plants in Canada, and a further increase in other tariffs would be likely to accelerate this trend.

HOW'S BUSINESS

GOING TO BE NEXT MONTH?

Charted by United Business Publishers, Inc.

THIRTY-FOUR ECONOMIC EXPERTS—EDITORS OF BUSINESS PAPERS PUBLISHED BY THE *United Business Publishers, Inc.*—HERE PRESENT A COMBINED OPINION ABOUT THE COURSE OF BUSINESS DURING THE MONTH OF SEPTEMBER. GOVERNMENT AND OTHER RECORDS PROVIDE YOU WITH HISTORY OF RECENT MONTHS. THIS BOARD OF EXPERTS DEALS ONLY WITH THE FUTURE. ITS OPINIONS ARE BASED ON CLOSE CONTACT WITH THE MORE THAN 400,000 SUBSCRIBERS REACHED BY THEIR PUBLICATIONS IN FAR-FLUNG FIELDS OF RETAILING AND INDUSTRY.

A general disinclination to buy has largely defeated any stimulation that might have been anticipated from price selling, and on many merchandising lines colder weather rather than economic improvement will increase retail trade.

The scarcity of rentals in comparison to the number of houses for sale reflects the general public's reluctance to enter long-term commitments and indicates some continued feeling of uncertainty among labor and salaried classes.

There is a tendency, as displayed by the automotive industry, to use the psychology of innovations in new goods in the hopes of

tempting better buying, but the majority of manufacturers are pursuing a conservative policy of watchful waiting.

Responsibility for continued depression is being placed by many on world conditions, and impartial observers comment upon the American situation as largely the result of stimulation of non-essential consumption that cannot be maintained by our present net-wage scale.

With vacation seasons over and relief from general hot weather and a relaxation from the acute drought conditions, September should, however, be a month of definite recuperative progress.

THE COURSE OF BUSINESS FORECAST FOR SEPTEMBER

BUSINESS	SALES	RETAIL STOCKS	COLLECTIONS	COMMENTS
AUTOMOTIVE	Passenger cars 20% less, trucks 10% better in Sept. than in Aug. Passenger cars 25% to 30% less, trucks 13% less than Sept., '29.	Passenger cars 5% greater, trucks slightly less in Sept. than in August. Both lower than Sept., '29.	Passenger car collections about the same, trucks better in Sept. than in August. Both slower than Sept., '29.	New passenger car models expected to boost sales only to a limited extent. Agricultural situation will reflect on truck sales.
DEPARTMENT STORES	Sales in September about same or slightly less than August and 6% to 8% under Sept., '29.	About the same in September as in August, and about 8% under Sept., '29.	Will continue about the same in September. Noticeably slower than Sept., '29.	Price selling is not being found especially effective as a stimulant.
HARDWARE	September should show very perceptible increase over August, but somewhat less than Sept., '29.	Little change in retail stocks which will be somewhat under Sept., '29.	Should show improvement—but slower than Sept., '29.	Fall repairs and replacements should begin to accelerate seasonal upturn after dull summer months.
INSURANCE	Life insurance about same, fire and casualty better in September than in August. Better outlook in all lines than in Sept., '29.		Collection situation is improving in all lines.	Increasing activity in industry. Should show a favorable reflection in premium incomes and new business.
JEWELRY	On a par with August or slightly larger in September—but below Sept., '29.	Larger in September than in August—but below Sept., '29.	Anticipated improvement in September over August—but slower than Sept., '29, except in the far southwest.	This industry has weathered conditions better comparatively than some of the necessity lines.
MACHINERY METAL PRODUCTS METALS	Steel production should run about 65% of capacity in September, and considerably under Sept., '29.			Larger pipe orders and fair volume of structural steel and reinforcing bar tonnages being maintained.
PETROLEUM (Gasoline)	September will show decrease of about 4.6% from August—but increase of 7% over Sept., '29.	Decrease of about 9/10% in September over August, with an increase of 24.9% over Sept., '29.		Stabilization of production promises recovery of portion of present profit losses during last half of year.
PLUMBING AND HEATING	Improvement noted in residential construction with continuance of satisfactory volume along industrial lines.	Purchases based largely upon immediate needs.	Fair.	September business should show definite improvement.
SHOES	Slow progress expected in September. As many pairs sold at retail as Sept., '29, but at lower prices.	Slight increase in stock in September—due to introduction of fall merchandise—15% under Sept., '29.	Collections about 30% off Sept., '29. Shoe industry fortunately not an extensive credit trade.	Colder weather influence, rather than economic, will start fall season.

Fuel and Lubricant Research Extended

Tests include various oils, ignition characteristics, and gaseous explosive reaction under constant pressure conditions + + + + +

By P. M. Heldt

IN conjunction with the tests of engine performance at high altitudes, described in last week's issue of *Automotive Industries*, the Bureau of Standards, with the cooperation of the National Automobile Chamber of Commerce, the Society of Automotive Engineers, and the American Petroleum Institute, has undertaken research of the fuel and lubricant problems.

A series of engine tests on various lubricating oils has been made by the bureau. All tests are run on the same engine, a six-cylinder, heavy-duty type designed for bus and truck work, with a bore of 4 and a stroke $4\frac{3}{4}$ in., and developing 75 hp. at 2500 r.p.m. The engine has seven main bearings, and main and crankpin bearings are pressure-lubricated. It is of

the type in which the cylinder block is sunk in the crankcase up to the valve pockets, which gives an unusual degree of rigidity to the engine structure.

Two reference oils have been selected of paraffin and asphalt base respectively, both having the same viscosity (88 seconds Saybolt Universal) at 210 deg. Fahr. These reference oils are used for checking the engine and as standards with which other oils can be compared. In order to make sure that engine conditions are the same in all tests, the compression pressure is measured, the spark plug and breaker gaps are checked, the engine is thoroughly cleaned, the cylinder diameters are checked and at least every third test is run with one of the reference oils. Parts are removed for cleaning previous to a test run with one of the reference oils, this test run being followed by flushing only, so as to obviate the possibility of changes in adjustment between runs with the reference oil and an unknown oil.

To assure constancy of operating conditions during the runs, load is applied by a fan brake, the throttle setting is fixed, the cooling water is maintained at the boiling point, a standard fuel is used, the air to the carburetor is cleaned, the engine is automatically shut off when certain limits of oil pressure and water temperature are reached, and measurements are made of the following items, the last six of which are recorded automatically: Humidity, barometric pressure, total fuel consumption, manifold vacuum, rate of fuel flow, rate of oil flow, oil pressure engine speed and temperatures at 10 points on the engine.

In test runs the engine is operated at approximately 1200 r.p.m. under a load of about 45 hp. for 2,160,000 revolutions, or about 30 hours. The cooling water is maintained at the boiling point because this temperature can easily be controlled, crankcase dilution is reduced and oxidation of the oil is accelerated.

Records are made of engine friction (determined from the rate of deceleration without load), speed variations,

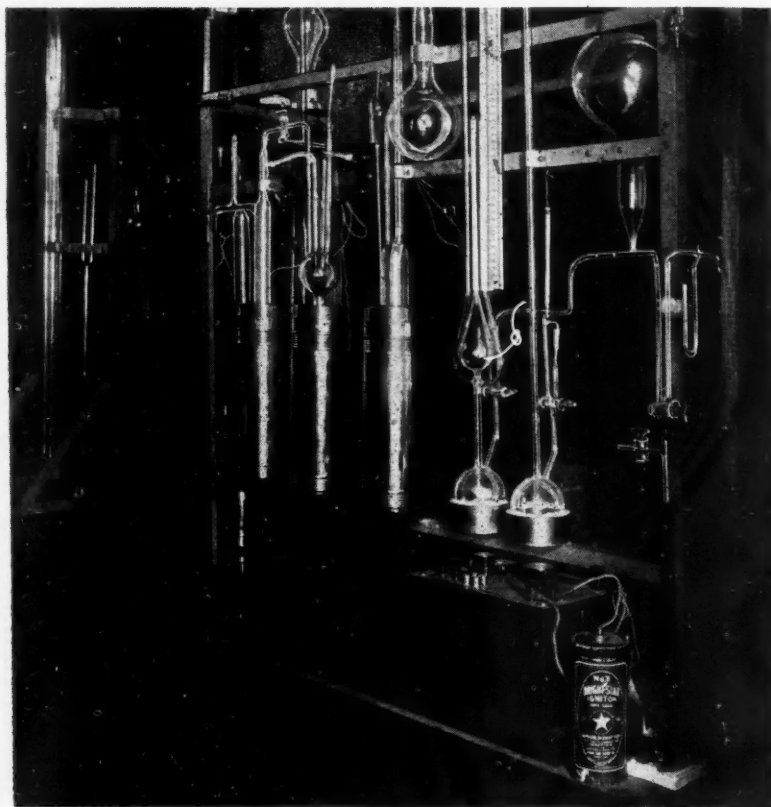


Fig. 1—Apparatus used for study of ignition fundamentals at very low pressures

by the Bureau of Standards

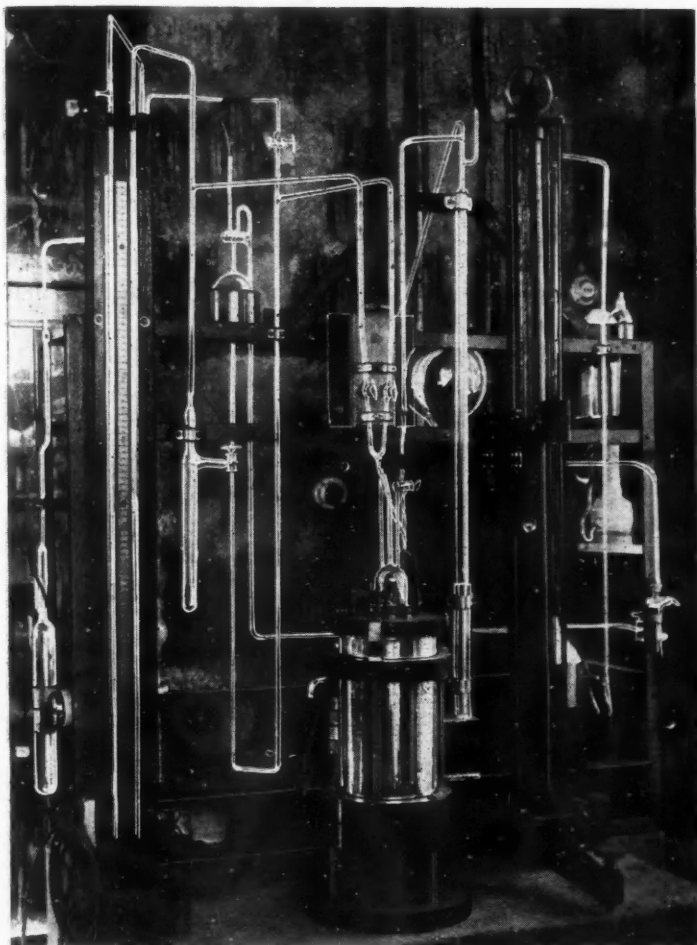


Fig. 2—Apparatus for studying ignition fundamentals at atmospheric pressure

bearing temperatures, carbon formation, oil consumption and wear, the latter being gaged by the amount of metal found in the oil and by increases in cylinder diameters. Carbon deposits are weighed and analyzed for naphtha-insoluble material, metals, dirt and "carbon."

The usual tests are made on the oils, including viscosities at 100 and 210 deg. Fahr., flashpoint, Conradson carbon residue, demulsibility and ash content, all both before and after use; acidity and Sligh oxidation of new oils only, and naphtha-insoluble material, chloroform - insoluble material and dilution of the used oils only.

The first five tests on the two reference oils showed that the

asphalt-base oil used gave the smaller carbon deposits.

A systematic study of ignition may be divided as follows: A study of fundamentals which should show the character of the spark most effective in ignition, the application of these data to engine performance and the testing of ignition equipment.

Two methods have been adopted for determining the character of the spark most effective for igniting a combustible mixture. The first method selected for this investigation allowed the measuring of the number of molecules of gas which are sufficiently activated by a spark discharge to combine. This requires experimental conditions such that the molecules which are not activated by the spark discharge do not combine, in short, that what is commonly called burning does not take place.

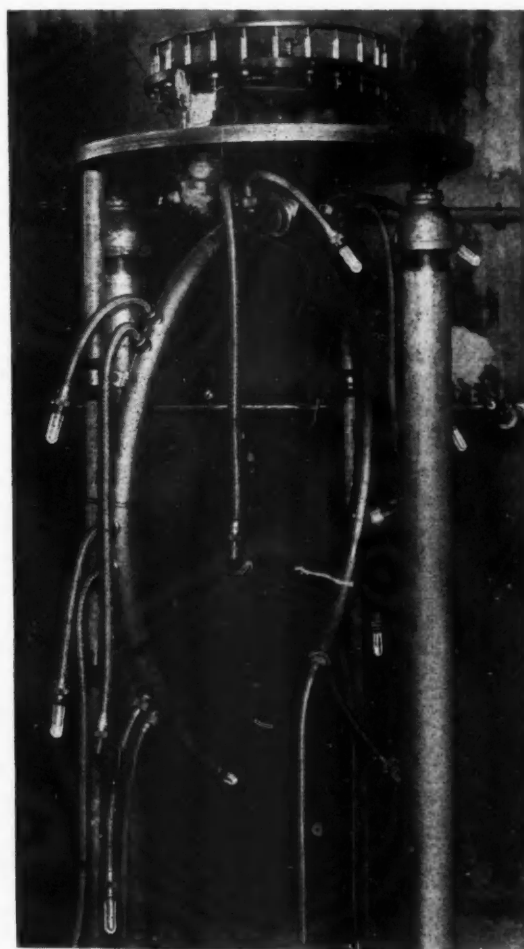


Fig. 3—Test equipment for radio-shielded ignition harness + +

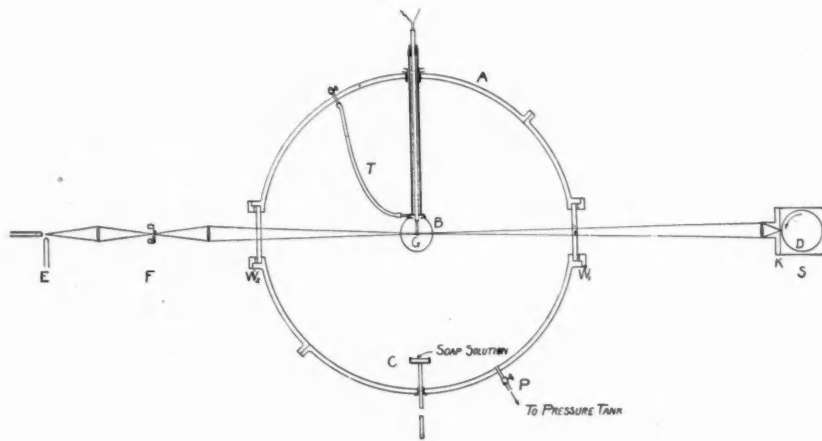


Fig. 4—Diagram of outfit for the study of the effect of pressure on the combustion reaction + + + +

This was accomplished by using explosive mixtures at pressures below 3 cm. The explosive mixture used in this work consisted of two parts of hydrogen and one part of oxygen by volume. Fig. 1 shows the apparatus used.

The results show that with constant energy the mass of gas which combines is increased approximately 400 per cent as the capacitance component is increased at the expense of the inductive component. They also show that with an auxiliary gap connected in series with the magneto and spark plug there is a decrease in the mass of gas which combines, providing the capacitance of the circuit is small. If a small condenser is shunted across the magneto with the series gap close to the spark plug, the mass of gas combining may be increased 200 per cent. A single comparison with the spark coil and a magneto showed that at very low speeds the spark coil caused a greater mass of gas to combine than the magneto. These results agree qualitatively with automotive experience.

In general the results show that a small change in the electrical constants of the circuit is accompanied by appreciable changes in the amount of reaction produced. They also indicate that the same amount of reaction would require less electrical energy if a spark with a greater capacitance component were used.

The second method used for determining the amount of reaction when different sparks are passed through gaseous mixtures is more difficult. At the present time the

work is being done at pressures in the neighborhood of one atmosphere. The experimental set-up is illustrated in Fig. 2. Burning is prevented by using mixtures of hydrogen and air which are too lean to burn. The percentage of hydrogen in the mixture is known and from this the mass of gas and volume affected by the different sparks may be determined.

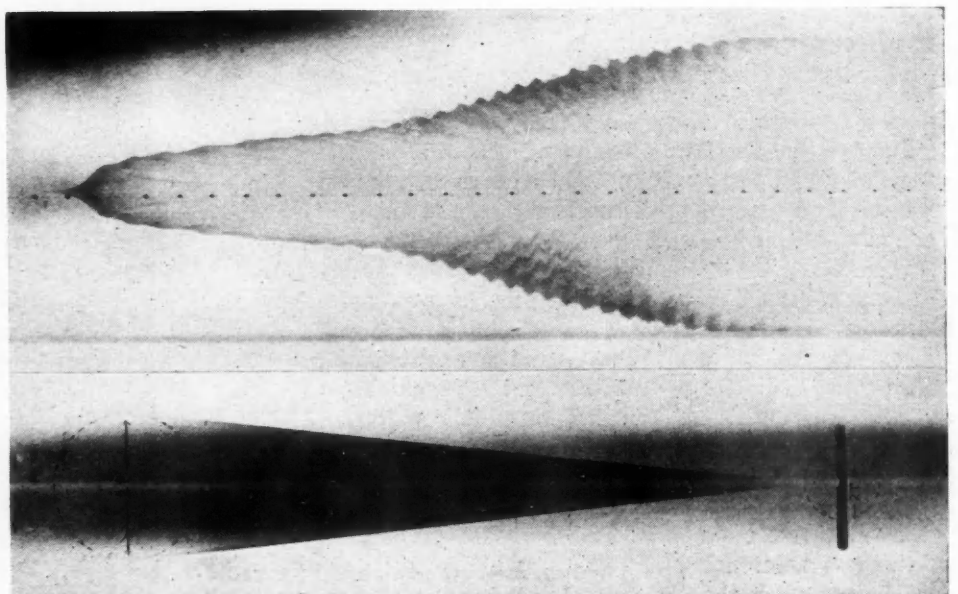
Preliminary runs have been made and the results indicate that the quantities of gas which combine will agree roughly with those found at low pressures.

Both methods in their present stage of development seem to offer a way of determining the most effective ignition system and thus assist in selecting ignition equipment. The results should also serve as a guide to designers of ignition systems. It is hoped that the work may be extended to high pressures (say 5 atmospheres) with gasoline-air mixtures, but much work must be done with the present arrangement to develop the necessary technique.

Most of the work on the testing of ignition equipment has been done on radio-shielded harnesses. The method used is to subject the harness to a vigorous spray of water for 3 hours, apply 15,000 volts for 5 minutes and then determine the resistance of each circuit. If a breakdown occurs during the application of the 15,000 volts, it is classed as a failure. It is also classed as a failure if the resistance of any circuit drops to less than 1 megohm. The test equipment is shown in Fig. 3.

The present test serves only to distinguish between

Figs. 5 and 6—Flame travel (progress of the reaction front) under conditions of constant volume (upper view) and constant pressure (lower)



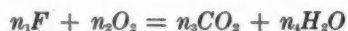
a harness which should not be used and one that may be satisfactory, but it means to develop tests which will assure the satisfactory performance of shielded ignition systems.

One of the projects being carried out at the Bureau of Standards for the National Advisory Committee for Aeronautics is an investigation of the gaseous explosive reaction—that form of gaseous transformation found applicable as a source of power in gas engines. The special feature of this particular investigation is that it takes advantage of constant pressure methods in studying a reaction wholly confined to the gaseous state and that at a very high temperature. Most previous investigations of this reaction form have been made under conditions of constant volume—a method that involves numerous variable and indeterminate factors during the reaction process. By constant volume methods, only the initial and final pressures may be determined with some degree of accuracy.

Under constant pressure conditions, however, the reaction runs its course with great uniformity. By suitable photographic means, accurate time volume figures of the entire progress of the reaction from the instant of ignition till its completion may be readily secured. These figures show that under conditions of constant pressure, the reaction zone, originating at the point of ignition, assumes the form of a sphere expanding within the homogeneous gaseous mixture at a constant rate. In this respect the behavior of the reaction zone resembles a sound wave in that every homogeneous mixture of explosive gases that will ignite produces, under constant pressure conditions, a spherical reaction zone with definite constant rate of expansion that is characteristic of that fuel mixture.

Interesting Kinetic Relation

As a result of studies carried out with many simple gases, with composite fuels, and with various hydrocarbon fuels, an interesting kinetic relation between fuel composition and the rate of propagation of the reaction zone within the explosive mixture was found to exist. The relation found is a very simple one, and because it is based on the stoichiometric equation of the fuel for complete combustion, it is a very practical one. If the correct stoichiometric equation for complete combustion be written in generalized form as



it will be found in all cases that the rate of propagation, s , of the reaction zone within the gases may be expressed as

$$s = k_1 (F)^{n_1} (O_2)^{n_2}$$

where F and O_2 represent the partial pressures respectively of fuel and oxygen. The exponents n_1 and n_2 are the coefficients of fuel and oxygen in the stoichiometric equation. k_1 is a proportionality factor; $n_1 + n_2$ gives the order of the stoichiometric equation.

The experimental device that made it possible to study the gaseous explosive reaction under conditions closely approaching those of constant pressure is a common soap bubble inflated with the explosive gaseous mixture and fired from the center. For studying

the effect of pressure on reaction rate, the bubble is enclosed in a large pressure chamber in which the pressure may be varied from 100 mm. mercury to 3000 mm. (Fig. 4). A report on the investigation of the effect of pressure on the reaction will be published soon by the National Advisory Committee for Aeronautics. Other reports bearing on the investigation may be found among the committee's publications.

Effects of Humidity

An investigation on the effects of humidity in the fuel charge of an internal combustion engine is in preparation at the present time. A certain amount of work along this line has been done at the bureau in the past, but the field has not been fully explored as yet. In the investigation now in contemplation it is planned to run under full throttle and at constant speed, and to vary the air temperature and the mixture ratio, the spark advance being varied to give maximum power with each mixture ratio. It is planned to vary the temperature of the incoming charge up to 60 deg. C. (140 deg. Fahr.), and to vary the humidity from the normal atmospheric humidity to 95 per cent saturation. After the tests have been concluded it is planned to evaluate the results by the method of least squares.

A study of combustion in engine cylinders is also being made. For this purpose a single-cylinder L-head type of engine is being used, and 31 quartz windows are set into the head, being distributed symmetrically over the entire combustion chamber. A stroboscopic device is applied to the engine, by means of which it is possible to determine when the flame reaches each window, in terms of the crank angle, and from the results outlines of the flame front as well as curves of flame propagation can be drawn (Figs. 5 and 6). Studies are being made with this setup on the effects of different fuels, mixture ratios, compression ratios, spark advance, etc., on the rate of flame propagation.

Results obtained with the non-turbulent heads used so far show a fairly symmetrical movement of the flame front from the point of ignition. One peculiar observation made is that the flame travel per degree of crank motion is about the same at 600 and at 1200 r.p.m., hence the actual rate of flame travel is nearly twice as great at the higher speed. One would be inclined to suggest that greater turbulence is the explanation of the more rapid combustion at higher engine speeds, but it is stated that the degree of general turbulence, as may be judged from the degree of non-symmetry of the flame front, is about the same in the two cases.

A FUEL, known under the name of "Azulina," which has been used in some trials in Brazil, consists of 43 deg. alcohol with an addition of 5 per cent of ether, and a trace of methylene blue as a denaturant. The railway motor car in which it was used has a capacity of 62 passengers, is provided with two engines of 100 hp. running at 1200 r.p.m., and is capable of making 52.5 m.p.h.

Dodge Offers Complete Line of Buses,

Bus engine, a straight 8 of 120 hp., is designed for removal as a unit for repairs and service

A REMOVABLE powerplant which can be replaced with another unit in less than one hour is incorporated in design of a new line of series 90 buses presented by Dodge Brothers in addition to a new line of trucks composed of two distinct groups of vehicles. The bus engine, which is a straight 8 of 120 hp. with bore and stroke of 3½ by 5 in., is mounted in unit with the transmission and radiator.

The new trucks comprise a standard line and a heavy duty line. The former group includes two ½-ton and two 1½-ton models, a four-cylinder and a six-cylinder in each case. A full line of standard bodies is provided for models in this group and the ½-ton models are regularly listed with bodies. Price of the complete ½-ton canopy top job is \$625 and that of the 1½-ton panel truck \$875. Six-cylinder editions of these models are offered at \$100 additional over list price of fours. The second line ranging from 1½ to 3 tons nominal rating embodies six-cylinder engines and four-speed transmissions throughout.

The new buses consisting of a 21-passenger seating capacity (50 passengers total, approximately) street car type, and a 21-passenger parlor car type, also incorporate other new features, such as an unusually wide and rigid frame. The utilization of space normally wasted for the driver's seat, four-

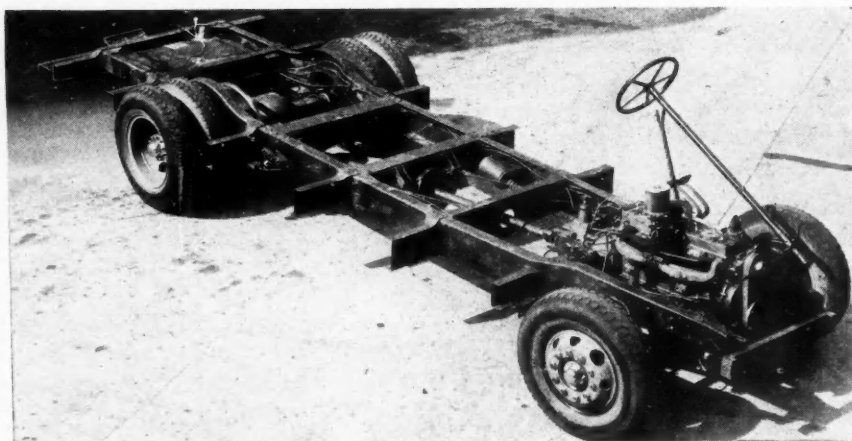
shoe double-disk type parking brake on the propeller shaft, ventilated disk wheels, gun iron drums with Brakeblok shoes, hydraulically operated with a vacuum

booster assisting, concealed trunk rack in the rear of the roof, an unusually strong front end body construction, vacuum operated doors front and rear in the street car type, provision of two sets of tandem windshield wipers, unusual amount of headroom, skid rails which transmit any impacts to the frame rather than the body.

The engine is provided with a four-point support in the form of flanged horizontal journals. These journals are clamped to the frame in the same manner as a connecting rod is assembled on a crankpin. One-half of the cylindrical clamping sheet is part of a frame bracket, and the other half resembles a removable bearing cap, which is bolted down with the engine in place. The shell halves are lined with rubber for noise and vibration insulation. Flanges on the engine leg "journals" are provided to resist side thrusts, so that the supports virtually form two additional frame cross-members. Pins project outward from the center of the rear motor legs and when the powerplant assembly is to be removed from the vehicle, these pins ride on I-beam guide rails located inside the frame side channels.

To remove the powerplant, the shell or cowl over the front, including in its assembly the headlights, is removed. The gearshift lever is removed by means of the single stud provided for that purpose. The propeller shaft is disconnected by means of

the two studs in the front companion flange of the front universal. Disconnecting the fuel line, and removing the caps on the engine mounting brackets, two bolts each, leaves the powerplant ready for removal. A truck is wheeled under the front end, and with the pins on the rear support riding the guide rail, the entire assembly, including radiator and transmis-



Dodge Series 90 bus chassis has wide and heavy frame, with steering gear arranged so that driver is seated beside the engine +

Trucks and Commercial Vehicles

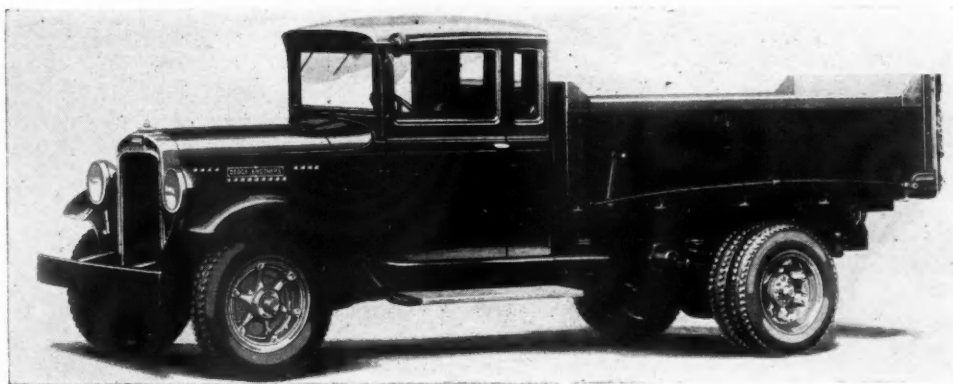
Standard and heavy duty trucks range from the four-cylinder 1/2-ton priced at \$625 up to the six-cylinder 3-ton listed at \$2,695 + + + +

sion, is removed in a forward direction. According to Dodge Brothers engineers, replacement of a complete powerplant can be effected in less than an hour's time.

The engine of the straight eight type has a nine bearing 2 3/4-in. crankshaft, aluminum alloy invar strut pistons, L-head valve arrangement, and full pressure lubricating system, with oil passages drilled in the block. The fuel system consists of an AC diaphragm pump driven off the camshaft, dual downdraft Stromberg carburetor, with dual manifolding and a 50-gal. gasoline tank mounted in the rear overhang of the frame.

Generator has a rating of 400 to 500 watts, and is driven together with the fan and water pump by twin-Vee belts. An oil wetted type air cleaner is standard equipment, as in an oil filter, gasoline strainer, and crankcase ventilating system.

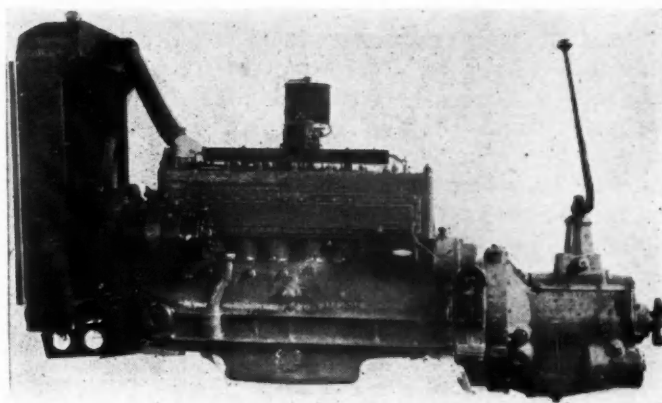
The single plate 13-in. clutch and four-speed heavy duty spur gear transmission are assembled in unit with the engine. All transmission bearings, except for the reverse gear idler shaft, are of the anti-friction type. The propeller shaft is of unusually heavy construction, of two-piece design and 3 in. in diameter. The self-aligning center bearing for the propeller shaft is located at one of the two heavy box-type cross-



Double reduction axles are standard equipment on the Dodge model F-60 3-ton, short wheelbase truck

Automotive Industries

Distinctive design of front end of Dodge bus + +



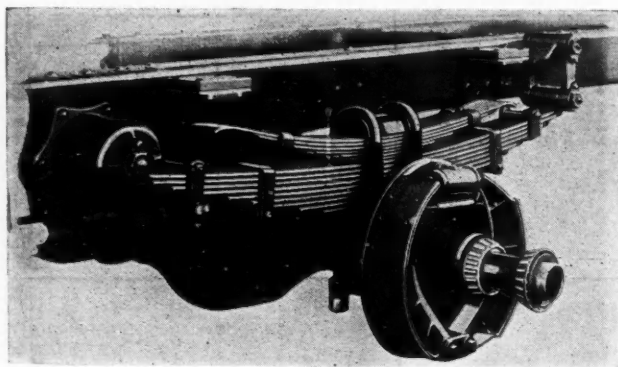
Radiator, engine and transmission of Dodge buses are mounted in unit for quick removal

members of the frame, this cross-member also providing the mounting for the four shoes of the double-disk emergency brake just ahead of the center bearing.

Underslung worm construction is used in the full floating Timken built rear axles, with dual wheels provided as standard equipment.

Frames are interesting in design, not only because of the extremely rigid construction, full depth cross-members, and full depth outriggers, but also because of the unusual width of 48 in. Tread is 72 in. front

August 30, 1930



Rear spring design on the 3-ton Dodge Brothers truck. The springs are so arranged that there are five successive stages of increasing spring resistance to deflection

and rear, but turning radius is stated as being only 27 ft. This short turning radius is in part due to the relatively short wheelbase of 172 in. for a bus of this carrying capacity. The short wheelbase has largely been made possible by the maximum utilization of space at the front end. As will be noted the hood is unusually short, the powerplant projecting back into the body as far as the front door pillar. There is a large door inside the body at the right permitting access to the engine for such minor servicing as cannot be done by lifting the small hood. On the left side of the engine has been placed the driver's seat, the operator thus sitting practically beside the engine, leaving the entire body back of the powerplant for the accommodation of passengers.

In the new Dodge buses, the steering gear housing is mounted at the front end of the left frame side member, with the drag link running backward instead of forward. The steering gear incidentally is of the worm and sector type, with variable ratio of approximately 20 to 1.

Service braking is on all four wheels, shoes being hydraulically operated, through a vacuum booster. Brake drums are of "gun iron," and the linings are $\frac{1}{4}$ in. Brakeblok. The vacuum tank for booster operation, and also for operating the doors on the street car type, is mounted inside the frame.

The semi-elliptic springs on both models, street car and parlor car, are underslung at the rear. On the street car type, helper springs are provided. The parlor car carries double acting Delco-Remy hydraulic shock absorbers. A full depth flanged box-type cross-member is located at the front ends of the rear springs. Chassis lubricating system is of the Meyers reservoir type.

Ventilated disk type wheels are used, demountable at the hub. Balloon tires are used all around.

Body construction is also interesting, especially at the front end, where a vertical buttress type of structure is used, having corner pillars of structural steel angles, with a structural steel frame supporting the two panel V-type windshield, the entire assembly being riveted, welded

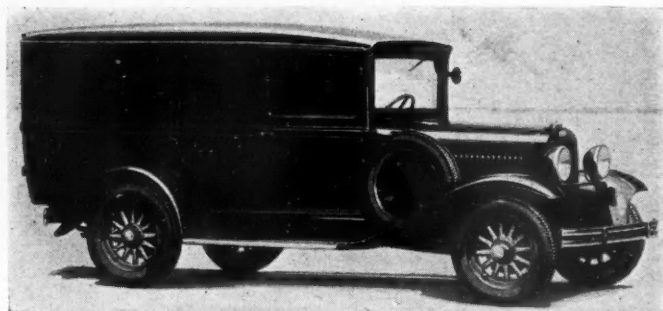
and reinforced with gussets for maximum rigidity. Since this front end, moreover, is located almost at the front axle, the usual cantilever front end construction has been largely supplanted by a box type construction similar to that used in "Metropolitan" coaches of the double-ended type.

Another interesting structural feature is that an oak skid rail at the side of the body is bolted to the body outriggers, and is notched for clearance around the body posts, so that impacts will be transmitted directly to the frame rather than injuring body panels and posts. This skid rail, said to be patented by Dodge Brothers, is of oak.

Main body framework is of second growth oak, with $\frac{1}{4}$ in. plymetl body side panels installed in sections and screwed in place for ease of replacement and strength. The roof is Haskelite, and flooring is $1\frac{1}{8}$ in. tongued and grooved yellow pine, laid crosswise and covered with $\frac{3}{16}$ in. linoleum.

The new line of trucks is composed of two distinct groups of vehicles. The first of these, the Standard line, includes two $\frac{1}{2}$ -ton and two $1\frac{1}{2}$ -ton models, a four-cylinder and a six-cylinder in both cases. The second line, ranging from $1\frac{1}{2}$ to 3 tons rating, inclusive, is designated as the heavy-duty group. Outstanding features of the Standard line are: lower prices, full-floating axles and cast alloy iron brake drums on the $1\frac{1}{2}$ -ton, full pressure engine lubrication, and large clutches for all, four-speed truck type transmissions on the $1\frac{1}{2}$ -ton, and new steel cabs and heavy frames. A full line of standard bodies is provided for the models in this group, with prices ranging from \$625 for the $\frac{1}{2}$ -ton and four-cylinder canopy model to \$875 for the panel body $1\frac{1}{2}$ -ton, four-cylinder truck. The six-cylinder editions of the $\frac{1}{2}$ and $1\frac{1}{2}$ -ton Standard line are offered at \$100 additional cost for all models as compared with the four-cylinder line.

In connection with this line of trucks, Dodge Brothers has developed a method for specifying maximum gross laden weight rating of all models. To this end a wide range of standard tire options covering both balloon and high pressure has been made available, and the maximum weights at both front and rear have been determined for the truck for each definite tire size. These weights are specified on a steel plate attached to the dash of the truck in the cab, with a statement that the warranty will be voided if the specified weights are exceeded for the various tire sizes.



The Dodge $\frac{1}{2}$ -ton panel delivery with four-cylinder engine lists at the price of \$645

Straight or double drop frames are optional at no extra cost on the two and three-ton models. These models have a 96 hp. engine, with a seven-bearing crankshaft weighing approximately 100 lb. The three-ton truck has a 10 in. frame channel depth. It is provided with a BK booster brake and five stage rear springs. Other features of the heavy duty line include the large three-inch exhaust pipe, the provision of cooling fins on the oil-pan, a 19 in. fan, twin-belt driven, and the adoption of an adjustable driver's seat-back in the cab.

Distribution and merchandising changes put into effect include the establishing of 85 depots or warehouses, each under the control of the dealers in the particular territory, with the cooperation of the factory. Each depot will keep available a full line of heavy duty trucks for delivery and display, thereby relieving the dealer of the necessity of carrying an extensive floor display of Dodge trucks.

The low prices on the Standard line have largely been made possible through the use of the Plymouth engine. In anticipation of this move, the Plymouth engine when recently changed, was modified to adapt it to truck, as well as passenger car use.

The engine has full pressure lubrication, a cooling capacity designed to comply with truck requirements, and develops a maximum of 48 hp. at 2800 r.p.m. Engines are mounted in unit with the transmissions on the Standard line. The ½-ton models, according to modern practice, are developed along passenger car lines with only such modifications as are necessary in connection with commercial usage.

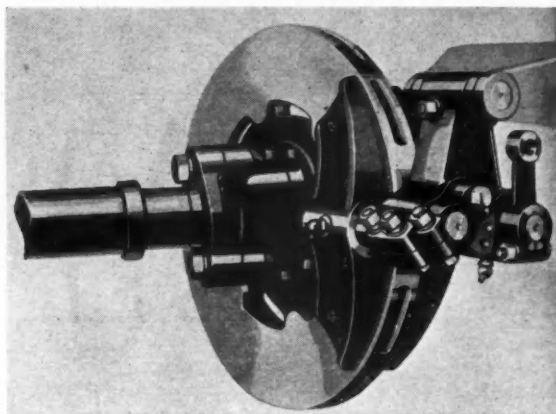
Standard Four at \$595

As has been stated, the 1½-ton rear axle is of the full-floating type. Wheels are mounted on two opposed taper roller bearings on the axle housing, and are connected with the axle shafts by bolting the hubs to a flange which is pressed onto the shaft and also arc-welded to it at several points for added insurance. The 1½-ton models carry a 10 in., single plate clutch with ball-bearing release. A standard S.A.E. opening for the installation of a power take-off is provided on the four-speed transmission. Internal hydraulic brakes are standard on this, as well as all other Dodge Brothers truck models. A departure from conventional practice is the adoption of cast alloy iron drums. The low price for the 1½-ton Standard four-cylinder chassis, \$595, is worthy of note.

Low prices for the six-cylinder models of the Standard line are, similarly, due partly to the use of the Dodge Six engine, the duplicate use of which, in both passenger cars and trucks, enables a low production cost. The six-cylinder engine develops a maximum of 61 hp. at 3400 r.p.m.

The heavy-duty line covers three nominal ratings, 1½-ton, 2-ton and 3-ton. Actual pay loads, as already pointed out, may range as high as six tons, and still remain within the warranty rating of the truck. To cover this range 11 different chassis and 53 models, when permissible tire size variations are taken into account.

There are two wheelbases available also on the 2-ton series, with payload capacity possibilities up to well



One of the features of the 2 and 3-ton models of the Heavy-Duty line is the disk-type emergency brake mounted on the propeller shaft

over 3½ tons, depending on tire equipment, and body and cab allowance. In addition, however, the two wheelbases are available also in either straight or double drop frames. The same option is also offered on the two larger models of the three-ton series, the 146 in.-wheelbase three-tonner being designed only with a straight frame as its use is largely confined to dump and similar applications, not requiring exceptionally low loading height.

Both the two and three-ton series models are powered with a six-cylinder, 310 cu. in. displacement, seven-bearing 100 lb. crankshaft engine. This engine while new to the truck field is not by any means untried. Designed in its original form for the Chrysler Imperial, it has been redesigned and proved in practically new form as a marine engine. Further modifications however, have been made for truck work.

The engine is of L-head design and develops a maximum of 96 hp. at 3000 r.p.m., it is stated, with a compression ratio of 4.7 to 1. It is mounted at four points in the chassis, front supports being of the spring type, with rigid mountings at the rear.

Pistons are of the Nelson type with Invar struts. The pistons carry five rings, the lowest of which is of the oil control type, with tongue and groove type compression rings for the upper four. Connecting rods are selected in balanced sets for maximum smoothness. Crankshafts are completely machined and have 97 sq. in. of bearing surface.

Engine lubrication is by pressure to main, crankpin and camshaft bearings as well as to the front end chain drive. Oil passages are drilled in the block and upper crankcase half as insurance against broken oil piping. Such further features as crankcase ventilation, oil wetted wire mesh air cleaner, and oil and gasoline filters are also provided. Fuel feed is by a variable stroke diaphragm type pump drive off the camshaft, and supplying a 1½ in. air valve carburetor. An engine heat indicator is mounted on the dash. The starter is of the two-stage heavy-duty type, and turns 100 r.p.m. normally, while cranking the engine.

(Turn to page 308, please)

JUST AMONG OURSELVES

Recent Rambles in Industry Indicate—

PLENTY of activity around automotive plants these days in the engineering, research and planning departments . . . there will be more free-wheeling cars on the American market before July, 1931, maybe much sooner than that . . . at least one or two of the projected 16-cylinder models will see the light of day before 1931 Chicago Show week has passed . . . one big sales manager thinks drought has set business back three or four months, but sees good year in 1931 and a whopper in 1932 . . . front-wheel drive designs now seem unlikely to sweep the industry in next 12 months . . . radical reductions in working forces have been common in industry but salary cuts for those left are uncommon although a few big companies have made them . . .

And Looking at Things From Marketing Angle—

NO general change in dealer discounts recently, but few changes made have been downward for the most part . . . more price cuts on passenger cars possible but far from certain . . . sales stimulation gained from those already made will undoubtedly influence future decisions of competitors . . . no room for "executives" in any but largest dealer establishments if

retailer is to make money from here in—everybody has to be an active worker . . . development of gliders with small engines, used for personal sport and pleasure purposes, seen as future likelihood by chief executive of one big engine company . . . cash position of a number of automotive companies looks very good these days even though net profits have been blah . . . dealers handling more than one line of cars will be more common in smaller towns in the future . . . exclusive policy in this regard no longer in force on at least one important low-priced line . . .

Body Hardware Conforms to Progressive Refinement

ALONG with some fairly radical changes in bodies this year, we are seeing continuance of the refinement process which has been going on ever since the old curved dash days. Inside hood latches, for example, will be found to have replaced the outside latch type in a number of the new models this year. In this later type only the bright handle of the latch appears outside the hood, thus bringing this unit into harmony with the smooth, streamline idea now common in body design.

Body hardware in general, in recent years, has frequently won success by making itself fit more perfectly into the new requirements on the general design trend, even when such harmo-

nization has resulted in the particular piece of hardware being individually less, rather than more, conspicuous.

Retailers See Profit in Stabilized Conditions

THE passenger car and truck dealer situation looks worse right now to those who are farthest away from it. We have spent quite a little time in the company of automotive men who have not been tramping the territories in recent months. Many of them have the impression that this has been a terrible year for dealers and that discouragement in dealer ranks is the rule.

Don Blanchard, editor of *Automobile Trade Journal and Motor Age*, has just spent nearly a month in dealer establishments throughout the eastern half of the country. He brings back no such hopeless tale of woe from the retailers themselves.

Sales are hard to make, registration totals are not rising as dealers would like. But the average dealer, he reports, is working harder than ever before, learning about the profit possibilities of his service department and looking to the future with courage and confidence.

Many dealers will have gone out of the picture when final automotive history for 1930 is written, it is true. But those who are left constitute the hardier, steadier more reliant element in the business. Many of them are less discouraged psychologically than they were during boom times, when they were making plenty of sales but couldn't see proportionate profits coming in. Today they believe conditions have stabilized and that in the future they will have better profit possibilities than ever before.—N.G.S.

1000 H.P. Air-cooled Engines Will Power Future Aircraft

A FORECAST of probable developments in air-cooled aircraft engines in the near future was given by A. H. R. Fedden in a paper presented to the Institution of Mechanical Engineers at its summer meeting in Bristol recently. Mr. Fedden limited his prognostications to the near future and expressed the view that we are probably a long way from the standardized power unit; the discovery of new materials, he said, may bring about radical changes, resulting in the design of an engine outside our present conception, or the evolution of a type not at present considered as a prime mover for aircraft purposes. Continuing, Mr. Fedden said:

"As aircraft differ greatly according to their purpose, engines will have to be designed for special purposes, and definitely divided into military and commercial types. For light commercial planes the in-line air-cooled engine has given exceptionally good service, and air cooling is universally used for this purpose.

"It is believed that for some time to come these types of engine will hold the field. In America the six-cylinder in-line air-cooled engine of similar power has been developed, and in inverted form it provides a new power unit with the minimum amount of resistance. For this category of aircraft several attempts have been made without success to produce an air-cooled two-stroke engine, with its obvious advantages of simplicity and light weight; with the introduction of supercharging and possibly direct fuel injection this may prove a likely line of development.

"For commercial aircraft of moderate size and for

Special purpose designs, divided into military and commercial types, forecast by A. H. R. Fedden before British I. M. E. + + + + +

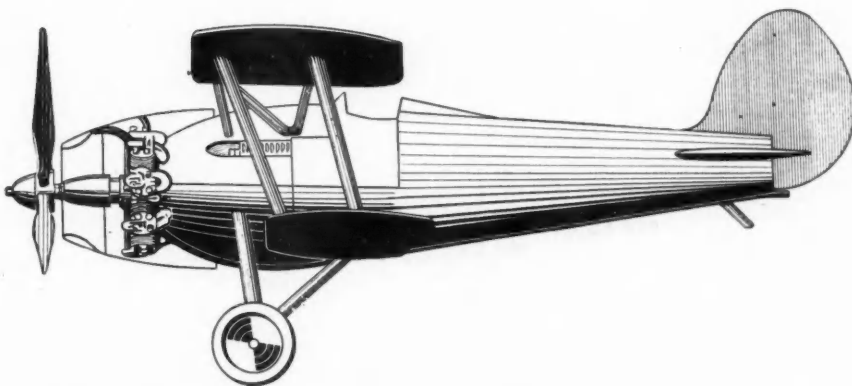
This is the second of two articles on the history and future of aircraft engines. The first appeared in *Automotive Industries* last week + + +

training machines the air-cooled radial engine is very widely used in all countries. The Wright 'Whirlwind' nine-cylinder 300 hp. radial engine is extensively used in four and six-cabin passenger machines, and has been employed in the Transatlantic flights.

"For military aircraft and commercial work the 400-500 hp. air-cooled radial aero-engine, such as the Armstrong-Siddeley 'Jaguar,' the Bristol 'Jupiter,' and the American Pratt & Whitney 'Wasp,' are widely used.

"Up to the present air-cooled in-line engines of this size have not been successful owing to cooling problems, and it is believed that by the time these engines are satisfactorily cooled by suitable air ducts the resistance will be practically the same as that of the radial engine, while the latter has the advantages of light weight and simplicity of construction outlined above.

"During the last year or two the introduction of completely cowled radial air-cooled engines promises to mitigate the greatest objection to this type, namely, that the air flow in passing the engine cylinders becomes thoroughly disturbed. The desirable clean streamline flow is thereby considerably broken up, and as the disturbance continues past the



Completely cowled engine installation designed for improved cooling and streamlining + + + +

structural part of the aircraft parasitic resistance is caused.

"The accompanying engraving gives a view of a completely cowled radial engine. The cowling is of streamline form in itself and in relation to the fuselage; it permits the entry of only sufficient air for cooling purposes. This cooling air finally passes out through a circumferential gap, to join with the minimum of disturbance, the larger portion of the air stream, which travels smoothly over the external cowling skin, and continues in a similar manner over the fuselage. A considerable improvement in the performance of aircraft is obtained as a result of this development.

"In the near future a 1000 hp. air-cooled engine will be required for both military and commercial work, and it is believed that the compression ignition engine has a considerable future. So much has been promised for the compression ignition aero-engine of late years that there is some skepticism concerning it. For the smaller types of power unit referred to previously it certainly does not seem extremely hopeful, although compression ignition engines of 225 hp. are being produced in America. It would appear that to cope with the additional stresses of a compression ignition engine

the specific weight will have to be at least 50 per cent higher than for the corresponding petrol engine, and for power units of 800 hp. or under this is a very serious consideration.

"There is also the question of smell, and creep from the fuel, and it is expected that this type of engine must run comparatively roughly, with serious effect on such a light structure as an aeroplane. When, however, one considers the requirements of a large aircraft remaining in the air for considerable periods, where the lower fuel consumption of approximately 25 per cent would be of the utmost value, it is believed that the compression ignition engine will come into its own. The author's firm have been experimenting for some time on a single-cylinder air-cooled compression ignition unit of 7 $\frac{3}{8}$ in. by 12 in. and 512 cu. in. capacity, and the results have been very promising. This single-cylinder unit has given an output of 80 b.hp. with a fuel consumption of 0.43 lb. per b.hp.-hr.

"The aero-engine manufacturer is always looking for better and lighter materials, and his developments must always depend on the materials available. Much is hoped from 'nitralloy' steel, and from lighter non-ferrous forgings, such as magnesium, to prolong life and reduce weight."

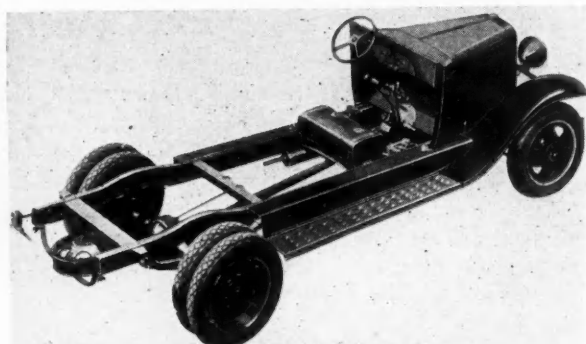
Chevrolet Announces 1½-Ton Truck at \$520

INTRODUCTION of a new 1½-ton truck by the Chevrolet Motor Company is announced by H. J. Klingler vice-president and general sales manager.

Highlights of the new type include dual wheels as optional equipment; heavier rear axle; new pressed steel wheels, and internal expanding four-wheel articulated-shoe type brakes, with new and larger brakes on the rear. The new truck lists at \$520 f.o.b. Flint, Mich., while dual wheels including six heavy duty truck-type cord tires are \$25 extra. Production of the new type is now under way.

The truck is powered by the Chevrolet six-cylinder engine.

The dual wheel equipment is of pressed steel web design, interchangeable front or rear, with six 30 x 5 six-ply truck-type cord tires, giving increased traction.



Chevrolet 1½-ton truck features dual pneumatics and pressed steel wheels

The rear axle, designed for either single or dual wheels, is the semi-floating type, with spiral bevel gears and 2 5/32nd inch axle shafts at the wheel bearings. Brakes are weatherproof, fully inclosed on all four wheels and with sixteen-inch drums on the rear. A one-piece steel channel frame, greatly strengthened where the load stress is greatest—another new feature this year—adds to the ruggedness and strength of the chassis.

Production of Chevrolet light delivery trucks for the first half of this year exceeded the same period last year by 20 per cent.

Dodge Offers Complete Line of Buses and Trucks

(Continued from page 305)

Single-plate 13 in. clutches are provided on both two and three-ton series, the large size indicating ample capacity. The four-speed transmissions which are mounted in unit with the engine, have exceptionally heavy gears and cases for the same reason. With a 6.375 to 1 reduction in the 2 ton, and an 8.436 to 1 ratio on the double reduction three-ton axle, this transmission provides for an overall reduction in low of approximately 44 to 1 and 58 to 1, respectively.

Service brakes on both the two and three-ton models are supplemented by highly effective 14 in. disk type emergency brakes on the propeller shafts. Service brakes are hydraulic in operation and on the three-ton models they are actuated through a BK vacuum booster. Malleable iron spoke wheels are standard on the two and three-ton series.

Annual Show Plays Important Part in Industry's Economic Stability

Centralized competition of style display more necessary as mechanical features are standardized + + +

THE idea of fairs and exhibitions as instruments of marketing is very old. Indeed the present shows and exhibitions of today, such as those held by the furniture and automobile industries, can trace their lineage to mediaeval times. The earliest fairs were held under the auspices of the free cities of Europe. These cities provided a suitable place and made arrangements for the conduct of business under definite rules in an effort to attract the itinerant merchants, who, in those days, conducted a large part of the commerce of Europe. The fairs were decidedly successful and for centuries constituted the principal market machinery for many lines of goods in Continental Europe.

The marketing services performed by the fairs were important. They served to bring buyers and sellers together at a time when it would have been difficult to perform this service in any other way. The facilities for communication were, of course, very poor and, short of such an actual concentration of the buyers and the sellers and the goods at one place, there was no way in which the information necessary for the transfer of goods on a reasonable basis could be obtained.

Need for Trade Center

Effective marketing can exist only when the buyers have knowledge of the available supply and the sellers of the existing demand. Not only did the mediaeval fairs bring to the interested parties information concerning the supply and demand of staple goods but they also served to introduce new products. Thus they performed the functions of the modern produce exchange as well as those now performed by advertising.

Among the oldest of the fairs is that of St. Denis, founded in Paris in 629. Probably the best known fair is that of Leipsic established in 1448 and still in existence. The functions of the European fairs, of course, changed with the growth of modern communication and transportation, and their importance declined down to the outbreak of the war. During

By C. E. Griffin

Dean, School of Business Administration
University of Michigan

the war, however, and with the revival of trade after the war, a need was again felt for these trade centers to clarify the chaotic conditions that existed in many trades and, accordingly, they have shown a new vitality.

In this country the furniture markets were organized, and still exist, to provide certain obviously needed services. Furniture is produced by numerous small companies; it is unstandardized, it is difficult to transport, hence the usual system of traveling salesmen carrying samples is not feasible; nor is it feasible to sell fine furniture by photographs. Hence the accepted method is for buyers and sellers to meet. An obvious economy is effected if they all can meet at one time and place.

In the early days of the automobile industry there was the need of educating the American public to the new product and the automobile shows, by bringing together the best and latest products of the new industry, brought the automobile into the public eye as nothing else could do. The automobile races and endurance tests served a like purpose. There seems little doubt now, that the shows played an important part in bringing about the rapid growth of the industry in this country.

The aviation industry is now in a position somewhat similar to that of the automobile. We hear a great deal about making the American people "air-minded." It is recognized that the problem of the industry is not merely to sell so many machines this year but by every method to educate the public to an acceptance of the idea represented by the new product. When that is done—if we can assume the existence of an adequate purchasing power—sales will follow. The aviation shows of the past few years center the attention of the nation upon the new industry effectively.

The value of this kind of publicity is not confined

Without Novelty Appeal—

The "higher strategy of modern selling" recognizes the importance of holding automobiles in the public mind against the competing demands of other goods and services + + + + +

to the early days of an industry. There is need for constant effort if any product is to keep its place in the public mind in the face of the competition of the hundreds of other demands for attention. Criticism has been heard in the past few years of institutional advertising and all forms of publicity not aimed directly at increased sales. This critical attitude is wholesome but the use of publicity has by no means been reduced to scientific accuracy and it is quite possible to carry this "from Missouri" attitude too far.

Even today the annual automobile shows are events of news value and the New York Show, even for people who do not attend, serves as a reminder of the progress being made in this tremendous industry as no amount of individual advertising could do. How much this focusing of attention once a year upon the industry is worth it is impossible to say, but in a broad view of the progress of the industry it seems to some to be worth a great deal. It is a means of making news of facts which, if offered by individual manufacturers, would be presentable only through the advertising columns.

Style Element Pronounced

At the shows in the early days of the industry attention was naturally directed to mechanical developments. Now the mechanical changes in cars from year to year are slight, and some critics have asserted that the period of usefulness of the shows has therefore passed. But as cars have become more and more standardized in their mechanical features they have become more and more varied in body lines and color—in short they have become style goods.

Now if we are to judge by the use of shows and fairs in other lines it appears that style is even more susceptible to presentation by the annual show than are mechanical features. Style, above all other things, needs to be seen. Descriptions of new colors are flat and inexpressive by comparison with a view of the product itself. The automobile is perhaps the most expensive article bought by the mass of Americans which has a distinctly style appeal—that is, a style appeal which is strong enough to make people discard the old style and buy the new. For this reason a selling problem is presented requiring the most effective methods.

In marketing style products not only is there an advantage in being able to display one particular

product but there is considerable advantage in having several styles displayed together for comparison. Articles having a decided style appeal are generally "shopping goods"—that is, they are goods in the purchase of which buyers want to compare values. The department store exists for the sale of goods of this class and it will be noted that successful department stores are usually located near to one another, thus facilitating comparison.

Another example of this tendency of shopping goods to gravitate to a common center is the concentration of exhibits by furniture manufacturers, previously noted. Furniture is unstandardized, and for this reason retail buyers are attracted to the centers where the products of all manufacturers are exhibited in such a way as to facilitate comparisons. Buyers consider this factor so much more important than the convenience of the location of the shows that they come from all over the country to the Grand Rapids furniture markets rather than rely upon the markets available nearer home, since the latter are smaller, and, therefore, less representative.

Concentration is evident, too, in the retailing of furniture; retail furniture stores are usually located in a comparatively restricted shopping area. In the retailing of automobiles, likewise, especially in the larger centers, there has been a tendency toward automobile districts as shopping centers. The point of greatest concentration is usually the best market for "shopping goods." Lloyds as the world center for marine insurance, St. Louis and certain European cities as markets for furs, and many other examples could be cited. The principle involved is that for "shopping goods" a market representing as large a part of the supply and as large a part of demand as possible is most effective. The automobile shows take advantage of this well-known marketing principle. They offer, as does no other device, an opportunity for immediate and face-to-face comparisons of the products of competing manufacturers. This consideration, incidentally, seems to favor the general shows as opposed to the recently developed private shows.

Private Show Expensive

The private show has little to offer by way of merchandise display that is not available at any time at any well-stocked dealer's showroom. The attendance depends upon the attracting force of high-priced orchestras and other forms of entertainment. At the large general shows an unusual opportunity for comparison is offered, and that the public recognizes this fact is shown by their willingness to pay an admission charge. Under these circumstances it is not surprising that the private shows are expensive. An artificial stimulus to attendance is required, the costs must be borne by the one exhibitor and, finally, those attending are often not so much interested in automobiles as in the auxiliary features.

From a marketing point of view private shows are not logically in the same class with the general shows. They are purely publicity stunts comparable

to hiring a band to play before a store on an opening day. The general show bringing together the products of all manufacturers does perform a real marketing function, that of comparison of values.

January is a dull month and if it were not for the annual shows at the first of the year the depression would no doubt be even greater than it is. The shows seem to the writer to be properly timed. They start the year with a burst of publicity which has the effect of advancing the selling season materially. Any force acting in this direction is desirable. The point is that sales are worth more in the lean months than in the good months. In their effect upon selling expense and upon production economies, sales in January are much better than additional sales in April.

The primary function of the furniture shows is to establish contacts between manufacturers and retailers—that is, to perform the wholesale function. Since the automobile industry is more highly organized, this aspect of shows naturally does not loom large. The development of "trade days" in the shows of the past few years, however, indicates a possibility that may become a very important service of the shows. The opportunity offered for contact, under favorable conditions, of representatives of the companies with dealers, with parts makers, and with one another should have a desirable effect. Most of the successful European fairs in other lines are designed primarily for representatives of the trade.

In the case of automobile shows, particularly—and the same economic principle applies in the furniture, radio, electrical and other industries—they produce widespread public acceptance at low unit cost.

In some lines group selling through the instrumentality of shows and exhibitions has become an economic necessity. Distributing cost incurred through selling individually by the routing of traveling salesmen, has been so great as to be prohibitive, and the only recourse of manufacturers of such appliances and products is through finding groups available to them through shows and conventions. This method has found application in the appliance field and in such spheres as the sale of service station equipment to garages and other small operators or suppliers.

Economical Sales Stimulant

The application of the show principle to such unusual or unexpected technical fields, such as machine tools and productive equipment, has been demonstrated. The manufacturer desirous of keeping abreast of new methods of reducing costs finds the show a profitable marketing place and the designer and purveyor of even the most expensive machinery running into thousands of dollars has found the show an economical sales stimulant.

When we attempt to make a specific evaluation of the automobile shows as an instrument of marketing we must recognize two distinct functions. First, the show provides the setting for actual automobile sales. Individual instances exist in which the shows

For the Industry—

No method suggests itself by which sales promotion service could be performed at a lower cost per dollar per unit sold than the annual automobile show + + + +

are distinctly worth while on this ground alone. Another function now looms as even more valuable. The selling by the industry of four or five million motor vehicles a year is a very large problem and must be viewed broadly. It involves, first, keeping the automobile constantly in the minds of the buying public in competition with radios, furniture, houses and the myriad things and services, which are constantly pressing for attention.

In a highly competitive industry such as automobile manufacturing there is danger of overlooking the fact that a manufacturer's competition comes fully as much from other industries as from other producers in his own field. The wood producers have recognized that fact; the furniture manufacturers are alive to it; bicycle manufacturers, as a group, are attempting to reinstate their product in the public consciousness; and scores of other industries could be cited in which it is recognized that an important part of the selling job is to maintain the position of their products in the public mind against the competing demands of hundreds of other goods and services.

Higher Sales Strategy

This is the higher strategy of modern selling. The automobile industry should not consider itself above the need for this type of sales promotion, for it no longer has a rapidly expanding domestic market. Its product no longer has a novelty appeal. It is time that, as an industry, it recognized this larger competition.

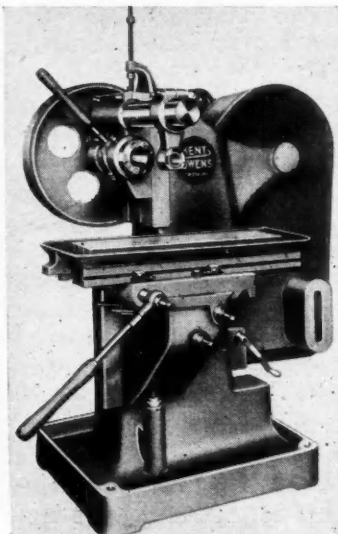
In many industries this function has been performed by cooperative advertising. The automobile industry has at its hands, in the annual show, an instrument which serves this purpose in an effective and economical way—effective, because it centers attention upon the industry at specific times and places as no other agency could do; and economical, because the cost is partly shared by the public itself through admission charges and the remainder is prorated over the whole industry.

It seems clear that the show, which is essentially a cooperative venture, is a more economical means of performing this general industry service than would be any special selling devices utilized by individual manufacturers. In short, the conclusions seem to be: first, that the shows do perform a needed service; and, second, that no other method suggests itself by which this service could be performed at a lower cost in dollars and cents per unit sold.

NEW DEVELOPMENTS—AUTOMOTIVE

Variable Speed Drive on Kent-Owens Miller No. 2

POSSESSING essentially the same features as the No. 1 miller described in the issue of June 21, 1930, the No. 2 miller recently announced by the Kent-Owens Machine Co., Toledo, Ohio, is designed for heavy duty production and jobbing work. The variable speed drive is exactly the same except that an idler pulley has been added.



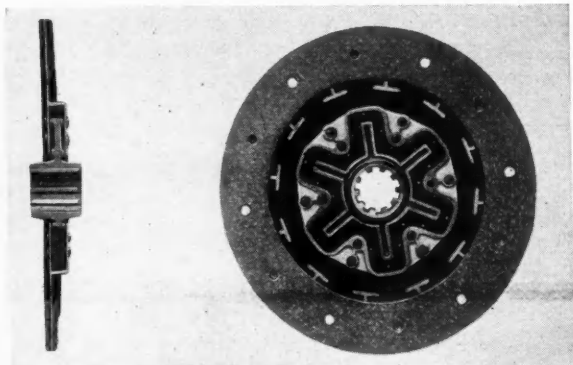
This machine has a continuous range of spindle speeds from 100 to 1200 r.p.m. with a 1200 r.p.m. motor. Recommended motor

size 3 to 5 hp. with a speed range up to 1200 r.p.m. Overall floor space required is 44 in. x 70 in. Net weight 2725 lb.

Borg & Beck Clutch With Vibration Damper

ANNOUNCEMENT has been made by the Borg & Beck Co., a division of Borg-Warner Corp., of an automotive clutch embodying a new type of vibration damper.

The new design is said to represent a decided improvement in clutch torsional vibration dampers, especially with reference to the life of same. It incorporates a star, or spoked-type hub, the

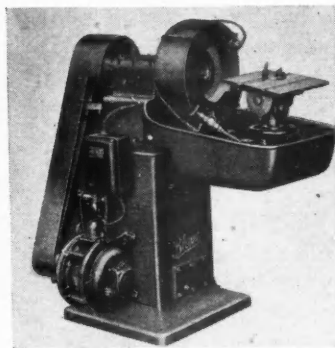


sides of the spokes being retained between two steel plates, and the faces or driving surfaces of the spokes cushioned by a molded strip conforming in shape to the spokes. This aluminum member with its flat steel cover is riveted directly to the main clutch plate.

A feature of the rubber cushion is that free space is provided at the sides of the rubber and also around the spokes and inside the aluminum retainer. This free space is said to greatly improve the vibration-absorption qualities of the damper and to reduce the chafing of the rubber cushion.

Blount Wet Tool Grinder for Cemented-Tungsten-Carbide

FLEXIBLE free-hand grinding of cemented-tungsten-carbide tools is afforded by the Blount 14 in. wet cup wheel grinder recently placed on the market by the J. G. Blount Co., Everett, Mass. To facilitate rapid grinding with correct angles on rakes and clearances of tools, an easily adjustable table is provided. It is arranged to give angles in two different planes with respect to the wheel, while the third angle is obtained by a sliding protractor guide against which the tool is held in the process of grinding. The table as a whole has a vertical adjustment to permit grinding various sizes of tools and a horizontal adjustment to accommodate wear of the wheel.



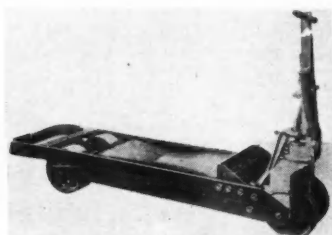
Two types of spindles running in two long self-oiling, phosphor bronze bearings, can be furnished, one to take a 14 in. x 4 in. x 5½ in. cup wheel, or one to take a ring chuck and 14 in. x 4 in. x 11 in. ring wheel. With either, a straight grinding surface is provided. Provision for taking up wear in bearings is provided. The fully inclosing wheel guard is adjustable for wear of the wheel and specially designed to eliminate splashing.

The drive is from a 2 hp., 1800 r.p.m. motor, belted to the spindle. If desired, Tex-rope or similar types of drive can be supplied. The motor is controlled by an automatic, magnetic starter having overload and low voltage protection with a conveniently placed push button start and stop station. Net weight is about 1000 lb.

PARTS, ACCESSORIES AND PRODUCTION TOOLS

Barrett Multiple Lift-Truck

A NEW multiple lift-truck with a 200 degree side lift and a range lift of from 2 to 8 strokes is a recent development of the Barrett-Cravens Company, Chicago, Ill. Among other features this truck is provided with a spring handle holdup and an automatic releasing latch which



prevents the handle from flying up.

The model T is 18 in. wide with a range of stock lengths; the model TK is 24 in. wide with a range of stock lengths. Both models have 2½ to 3 in. lift and a capacity of 6000 lb.

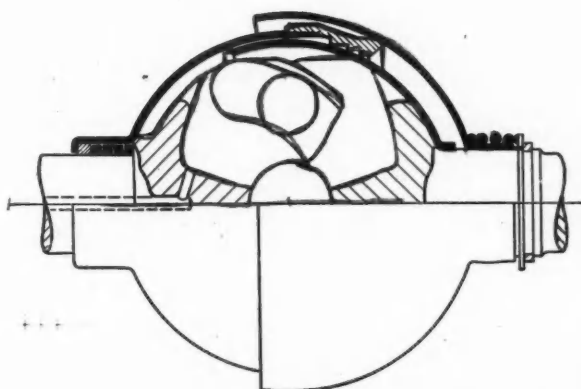


Weiss 40-deg. universal joint. Assembly of two high-angle joints with intermediate shaft + + + + +

Owing to the large operating angle required there is a tendency to weaken the members at the point where the arms originate, and this is provided for by either forging or welding or reinforcing members between adjacent arms close to their outer surfaces and cutting back the outer portions.

Weiss High-Angle Universal Joint

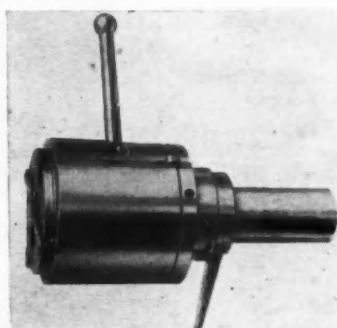
WEISS ENGINEERING CORP., Grand Central Terminal Bldg., New York, has developed a new design of universal joint specially adapted for use in front-wheel drives and for use in rear axles with independently sprung wheels. The new model differs from former designs of the Weiss universal in that it has a larger limiting angle of operation, viz., 40 deg. The joint has the further advantage that for a given torque capacity it is of comparatively small diameter, as is required where the joint must be placed inside the steering head, in front-wheel drives. The joint illustrated has an overall diameter of 5¼ in. To make this large angle possible the grooves in which the balls are located are curved. Each of the members of the joint has three arms.



Style KL Geometric Self-Opening Die Heads

A NEW line of self-opening die heads, style KL ranging from 9/16 to 5 in. size, has been added by The Geometric Tool Co., New Haven, Conn.

Equipped with a lever trip (sometimes known as an outside trip), it is particularly adapted to short threads or threads of fine pitch where the pull-off type of trip is not sensitive enough. All stress in tripping is removed from the chasers and from the threads being cut, thus preventing torn threads. The trip lever is so placed that it will contact with an adjustable stop, which may be easily rigged up for any machine. It is customary to put such a stop on the cross slides, or in some cases on the bed or frame of the machine. Contact between the stop and the trip lever causes the head to open at the desired length of thread, the head being reset by a conveniently placed handle.

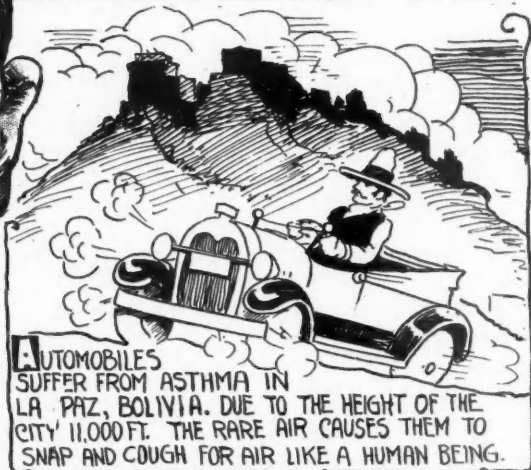
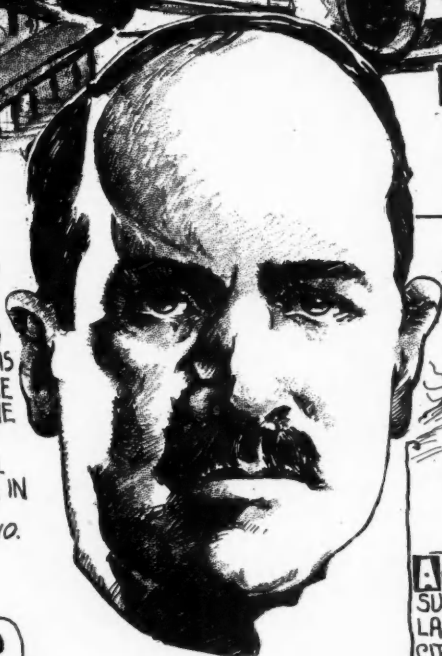


Automotive Oddities—By Pete Keenan

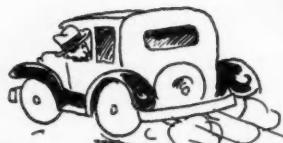


CCLASS DISTINCTION IN MOTOR TRAVEL. IN FEZ, MOROCCO, FIRST CLASS PASSENGERS RIDE IN FRONT OF BUS, SECOND CLASS IN THE REAR — WHILE THIRD CLASS RIDE ON THE ROOF.

GLENN H. CURTISS, WHEN LOOKING FOR A LANDING FIELD DURING HIS FAMOUS ALBANY TO NEW YORK FLIGHT, WAS INVITED TO LAND IN THE INSANE ASYLUM BY THE SUPERINTENDENT AT POUGHKEEPSIE, AS ALL FLYERS LANDED THERE IN THE END ANYWAY.
May 29th, 1910.



AUTOMOBILES SUFFER FROM ASTHMA IN LA PAZ, BOLIVIA. DUE TO THE HEIGHT OF THE CITY 11,000 FT. THE RARE AIR CAUSES THEM TO SNAP AND COUGH FOR AIR LIKE A HUMAN BEING.



A HIT-AND-RUN-DRIVER FOUND OUT AFTER FOUR DAYS OF HIDING THAT THE VICTIM HE REFUSED TO AID WAS HIS OWN GRANDFATHER, 81 YEARS OLD. Easton, Md., July 22nd 1930.



MR. AND MRS. LUMBECK SAVED EIGHT TOBACCO CANS FULL OF PENNIES AND PAID FOR A 12-DAY MOTOR TRIP WITH THEM. THEY HAD 8,200 PENNIES. Oquawake, Ill., 1930.



NEWS OF THE INDUSTRY

National Air Races Attract Big Crowds

**Pittcairn Autogiro is Center
of Interest; Sensational
Flying Adds Thrills**

CURTISS-REYNOLDS AIRPORT, GLENVIEW, ILL., Aug. 28—Improvements in engine design, advanced styles in body construction, sensational flying and the autogiro demonstrations are the big attractions at the National Air Races being held here this week. Almost as much attention is being attracted to the Pittcairn Autogiros as to the military planes and speed contests.

The Rotor planes have undergone some improvement and their daily appearance has been the feature of the show. Harold S. Pittcairn, James C. Ray, vice-president of Pittcairn Aircraft, Inc., and C. J. Faulkner are flying the ships invented by Juan de la Cierva during the races. The improvement in the autogiro takes the form of a device connecting the standard Wright J-6 225 Whirlwind motor and this permits the pilot to bring the four horizontal rotor wings up to the necessary speed for flight. The pilot then declutches and the windmill varies to the take-off, almost vertically. The speed races and the sensational flying of the Frenchman Doret and Jimmy Doolittle and the other contests and events on the race program have drawn crowds averaging 40,000 daily to the airport. The feats of the International flyers brought by Al Williams came in for their share of acclaim. Jimmy Doolittle's Mystery Ship was taken out of competition Thursday to permit installation of a supercharger which the pilot wants for a speed test at the close of the races.

Three crashes, only one serious, marred the first five days of the races.

(Continued on page 319)

Met Section to Meet Sept. 9

NEW YORK, Aug. 27—The Metropolitan Section of the Society of Automotive Engineers will open its season on Sept. 9 with an all-day outing at West Point. The first regular business meeting of the section will be held in October.

Show Committee Meets

CHICAGO, Aug. 26—Members of the Motor and Equipment Association show committee met at the Stevens Hotel in Chicago on Monday, Aug. 25, to complete final arrangements for the twelfth annual M. E. A. International Exposition of Automotive Products which will be held in the Cleveland Public Auditorium, Nov. 10 to 14, inclusive.

Dodge Marathon Car Completes 22,000 Miles

DETROIT, Aug. 27—Delayed on account of the roughest roads it has encountered since starting on its run 46 days ago, the Dodge Eight Mileage Marathon car completed its third cross-country trip at midnight, Aug. 15. The speedometer registered exactly 22,000 miles at the end of trip No. 3.

Purchases Ryan Plant

ST. LOUIS, Aug. 25—The plant of the Ryan Aircraft Corp. at Lambert-St. Louis Field has been purchased by Phil De C. Ball, owner of the St. Louis Browns, who was instrumental in having the concern transferred here from San Diego, Cal., following the Lindbergh trans-Atlantic flight in 1927.

The purchase includes the building and machinery, but does not involve manufacturing rights for Ryan planes. Mr. Ball declined to discuss the purchase price, and said he has no definite plan for using the factory at this time.

Federal Gets Dividend

NEW YORK, Aug. 28—Federal Motor Truck Co. has declared regular quarterly dividend of 20 cents payable Oct. 1 to stockholders of record Sept. 20.

Ford Appoints Seyffer

NEW YORK, Aug. 27—Announcement has been made of the appointment of C. J. Seyffer, who has been acting manager of the Ford Motor Co. branch at Kearny, N. J., since the resignation of William A. Francis at the beginning of the year, as manager of the branch. C. I. Kenney, who has been connected with the Ford company in Milwaukee at the Twin City branches, has been appointed assistant manager at Kearny.

W. B. Stout is Caustic On Subject of Planes

**Tells S.A.E. Aeronautic
Meeting "We Are Fiddling
With Kites"**

CHICAGO, Aug. 27—"No one has yet built an airplane. We are fiddling around with kites. We are more or less forced, whether we want to or not, to take up the subject of radical airplane design and get busy on the problem." So spoke William B. Stout, president of the Stout Air Services, Inc., and original designer of the Ford-Stout all-metal airplanes, at the eighth annual Aeronautic Meeting of the Society of Automotive Engineers, held in Chicago this week in conjunction with the National Air Races.

It was Mr. Stout's opinion that only by radical thought and development could we reach a position where the airplane will become sufficiently fool-proof to put it in the hands of the masses. The economic need for greater aerodynamic efficiency and higher cruising speeds were illustrated by Mr. Stout by referring to recent changes in the Ford planes to reduce their resistance.

The increase to 128 m.p.h. cruising speed and with eight trips per day between Detroit and Chicago, Mr. Stout estimated, results in a saving of approximately \$600 per day since fuel consumption and power output remained unchanged.

As subject perhaps worthy of consideration, Mr. Stout mentioned the tail first type of airplane, the real flying wing with housed engines, shaft-driven propellers, stainless steel for covering and structural steel for the airplane structure.

Henry M. Crane, General Motors Corp., stated that aerodynamically some of the old planes performed better in some respects than do recent designs, especially with respect to landing characteristics.

Hayes Reports Loss

DETROIT, Aug. 26—Hayes Body Corp. has reported for the June quarter a net loss of \$279,073, against a net loss of \$106,695 in the preceding quarter and a net profit of \$400,398 before Federal taxes in the June quarter last year.



One of the tests in the recent German light-plane contest required that the plane be dismantled and passed through a gate of arbitrary dimensions. In the top picture one of the dismantled planes is being towed toward the gate. In the bottom picture Capt. Broad in a Gipsy-Moth is shown crossing the finish line of the race. Details of the contest on page 322, this issue

Iowa Spends More on Roads

DES MOINES, IOWA, Aug. 25—Annual report of J. W. Long, state auditor, for the fiscal year ending June 30, shows that the state expended \$43,151,910 upon its primary road improvement program during the year, nearly half the total, \$21,195,027 going for paving primary highways. The year's expenditures exceeded by \$9,000,000 the total for the preceding 12-month period and represented peak of the state's road building activities to date.

Oregon Section Elects

PORTLAND, ORE., Aug. 25—Officers for 1930-31 in the Oregon section of the Society of Automotive Engineers are as follows: Chairman H. W. Drake, superintendent of garage, Portland Gas & Coke Co., Portland; vice-chairman, C. C. Humber, transportation superintendent, Longview Public Service Co., Longview; second vice-chairman, E. J. Blaser, manager Factory Motor Car Co., Portland; third vice-chairman, F. G. Baender, head of department of mechanical engineering, Oregon State College, Corvallis,

Ore.; secretary, F. P. Myers, president, manager-engineer, Myers-Blackwell Co., Portland; treasurer, J. Vern Savage, superintendent, city of Portland municipal shop.

Complete Plant Consolidation

DETROIT, Aug. 26—Plant consolidation of the Wolverine Screw Products Co. and the Ex-Cell-O Aircraft & Tool Corp., recently merged at Detroit, now is practically complete, according to a company announcement.

Metal Congress Plans Full Technical Schedule

Chicago Meeting Will Be Held Cooperatively

CHICAGO, Aug. 25—Thirty-five technical sessions are scheduled for the 1930 National Metal Congress to be held the week of Sept. 22. The American Society for Steel Treating, the American Welding Society and the American Society of Mechanical Engineers will each devote eight sessions to technical papers. The American Institute of Mining and Metallurgical Engineers will have seven sessions.

American Welding Society meetings will be held in the Congress Hotel and the National Exposition and the technical sessions of the other societies will be at the Stevens Hotel. More than 175 will exhibit their products, W. H. Eisenman, secretary for the American Society for Steel Treating, which sponsors both the congress and exposition, has announced.

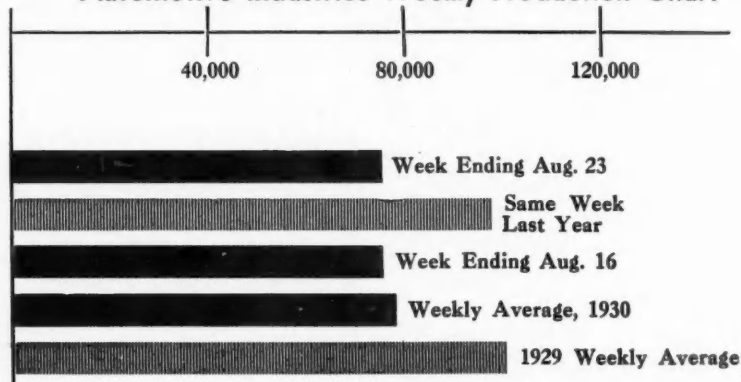
Sessions on sales problems and methods will also be held by the American Society for Steel Treating. Prof. R. C. Borden and Alvin C. Busse, of New York University, will present a dramatized lecture on sales strategy and other talks of a similar nature are scheduled.

Split Coach Leases Plant

YORK, PA., Aug. 25—The Split Coach Motor Corp., Canada, manufacturer of the Split Coach tourist-trailer, has leased additional space in York for the purpose of expansion. The corporation, which is located in the Martin-Parry Body Corp. buildings in York, has acquired the York Tack and Nail works plant. The leased structure provides between 20,000 and 25,000 sq. ft. of floor space. The lease is effective at once.

The Split Coach Corp., after having taken over the output of Martin-Parry, has decided upon further expansion in York and expects to lease other suitable structures in the future.

Automotive Industries Weekly Production Chart



Wayne County Sales Off From Last July

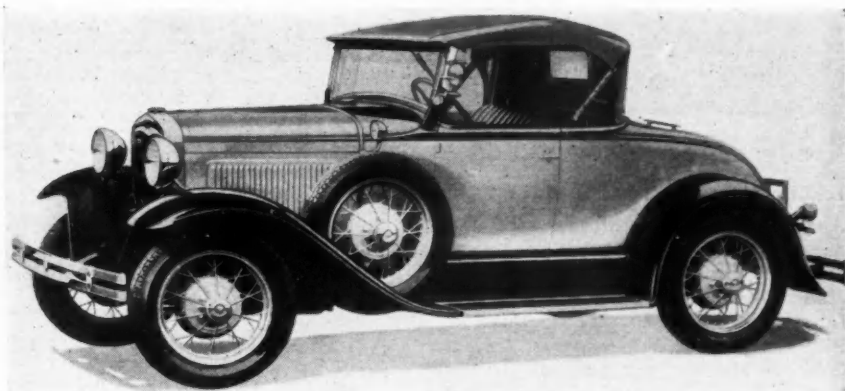
Decrease is 54 Per Cent
From 1929 Figure

DETROIT, Aug. 25—New passenger car registrations in the state of Michigan during July totaled 11,275, a decrease of 3592, or 24 per cent, from the 14,867 registered in June, and a decrease of 13,346, or 54 per cent from the July, 1929, total of 24,621.

Ford registrations in Michigan last month—representing 58 per cent of all makes—totaled 6570, a decrease of 1862, or 22 per cent from the June Ford total of 8432 and a decrease of 3189, or 32 per cent, from the Ford July, 1929, total of 9759.

Chevrolet passenger car registrations last month totaled 1586. Buick was third on the list with 443; Plymouth fourth with 332, Essex fifth with 244, and Oldsmobile sixth with 232. There were 82 of the Austin cars (introduced June 28) registered in the state last month, bringing the total to date in the state, as of July 31, to 84.

Total commercial car registrations in Michigan last month were 1128, a decrease of 284, or 20 per cent, from the total of 1412 in June and a decrease of 1300, or 53 per cent, from the total of 2428 for July, 1929. Ford showed a total of 725, as compared with 896 in June and with 1303 in July, 1929. Chevrolet was second last month with 213, and International third with 48. Five Austin commercial vehicles were registered.



Ford has added this roadster to its de luxe line, which now includes also a sedan and phaeton. The three cars are mechanically identical with the standard Ford models but include a variety of special equipment features

Reeves to Address Service Men

NEW YORK, Aug. 26—Automotive Service Association, Inc., will hold its first fall meeting at its new meeting place, The Traffic Club, Park Central Hotel, Thursday evening, September 11. Alfred Reeves, general manager, National Automobile Chamber of Commerce, will be the speaker of the evening. His subject will be The Future of the Service Man.

Motor Wheel Reports Assets

DETROIT, Aug. 26—Motor Wheel Corp. and subsidiaries in a consoli-

dated statement as of June 30 showed total assets of \$16,091,275 as compared with \$17,199,303 on June 30 of last year. Profit and loss surplus was \$6,444,124 as compared with \$8,308,017. Current assets were \$7,171,771 and current liabilities \$682,977 as compared with \$8,990,649 and \$1,462,307, respectively, a year ago.

Burton Increases Capital

CHICAGO, Aug. 23—Burton Auto Springs Corp. of Chicago has increased its capital stock from \$125,000 to \$200,000.

Exports, Imports and Reimports of the Automotive Industry for July and for the First Seven Months of 1930

	Month of July		1930		Seven Months		Ended July	
	1929	Value	1930	Value	1929	Value	1930	Value
EXPORTS								
Automobiles, parts and accessories .....	..	\$47,181,497	..	\$17,370,669	..	\$386,135,166	..	\$200,127,271
Electric trucks and passenger cars	12	16,976	..	..	105	156,815	29	52,732
Motor trucks and buses except electric (total)	26,060	12,869,527	4,042	2,899,042	128,761	74,012,311	59,092	39,446,362
Up to 1 ton inclusive	22,909	9,483,200	1,351	758,793	97,794	43,075,085	23,271	12,600,160
Over 1 and up to 2 1/2 tons	2,863	2,641,327	2,506	1,737,865	28,834	25,338,506	32,491	20,946,419
Over 2 1/2 tons	288	745,000	185	402,384	2,133	5,598,720	2,880	5,899,783
PASSENGER CARS								
Passenger cars except electric (total)	29,082	18,968,341	7,828	5,583,839	248,692	170,158,679	114,736	79,887,083
Low price range \$1,000 inclusive	22,745	11,414,010	5,457	2,704,740	190,721	98,064,669	83,575	42,439,645
Medium price range \$1,000 up to \$2,000	5,659	5,914,464	2,107	2,179,936	51,059	55,470,892	27,331	28,327,798
High price range over \$2,000	675	1,639,867	264	699,163	6,912	16,623,118	3,830	9,119,640
PARTS, ETC.								
Parts, except engines and tires .....	..	..	..	..	..	..	..	..
Automobile unit assemblies .....	..	8,511,034	..	4,637,115	..	81,920,582	..	43,572,291
Automobile parts for replacement (n.e.s.) .....	..	5,318,370	..	3,345,528	..	44,704,380	..	27,845,645
Automobile accessories .....	..	822,687	..	381,122	..	6,396,791	..	3,781,903
Automobile service appliance (n.e.s.) .....	..	719,640	..	500,298	..	4,584,729	..	4,250,023
Trailers	45	3,949	67	24,291	570	270,730	950	445,587
Airplanes, seaplanes and other aircraft	23	346,190	31	418,102	217	3,593,264	217	3,256,584
Parts of airplanes, except engines and tires ..	..	230,719	..	193,640	..	1,284,244	..	1,335,094
BICYCLES, ETC.								
Bicycles	496	9,173	372	10,227	3,156	81,163	2,651	70,936
Motorcycles	430	118,995	342	100,702	11,343	2,599,803	8,170	1,894,119
Parts and accessories, except tires .....	..	98,420	..	77,229	..	694,649	..	684,436
INTERNAL COMBUSTION ENGINES								
Stationary and Portable .....	..	..	..	..	..	..	..	..
Diesel and Semi-Diesel .....	..	..	..	..	..	..	..	..
Other stationary and portable:	..	..	..	..	..	..	..	..
Not over 10 Hp.	2,986	276,477	2,392	165,953	22,498	1,993,097	16,850	1,302,752
Over 10 Hp.	188	246,760	341	156,551	2,689	1,388,145	3,587	1,983,418
Automobile engines for:	..	..	..	..	..	..	..	..
Motor trucks and buses	248	61,938	81	18,818	7,255	973,130	19,009	1,549,067
Passenger cars	4,959	487,317	3,241	448,622	71,536	7,323,375	36,284	3,473,324
Tractors	98	41,049	31	12,368	549	162,724	194	80,846
Aircraft	50	163,081	45	152,989	228	993,363	228	985,773
Accessories and parts (carburetors) .....	..	428,261	..	249,393	..	2,790,922	..	2,253,388
IMPORTS								
Automobiles and chassis (dutiable)	85	86,671	54	69,709	373	728,624	322	500,608
Other vehicles and parts for them (dutiable) ..	..	181,665	..	140,223	..	1,135,538	..	1,159,662
REIMPORTS								
Automobiles (free from duty)	20	25,169	19	32,634	282	347,339	162	155,435

Men of the Industry

General Motors Men are Shifted

A group of General Motors staff men sailed last week aboard the S. S. Hamburg on special assignments to plants in Europe. These include M. L. Luiggi, R. G. Jones, C. M. Foss, A. Pitkethley and W. D. Appel. J. N. Cook, production manager of General Motors South African, also sailed on the Hamburg to return to his post after a vacation visit to the home office.

Other General Motors executives who started abroad last week include C. R. Osborn, manager of the general manufacturing division, who sailed on the Aquitania for a visit to European plants; F. L. Hopkinson, who sailed on the S. S. President Jackson for a special assignment in Japan, and J. E. Hill, treasurer of General Motors Poland, Warsaw, who sailed on the S. S. George Washington after a vacation and visit to the home office.

Incoming executives include M. A. Mann, general service manager, and J. C. Fouse, advertising manager of General Motors Java, Batavia, who arrived on the S. S. Albert Ballin, and I. E. Loveland, formerly regional sales manager for Europe, who arrived on the S. S. Berlin for a vacation and new assignment.

Lydy and Speers in U.S.

R. A. Lydy, managing director of the Champion Sparking Plug Co. of England, and C. A. Speers, overseas representative of the Champion Spark Plug Co., Toledo, are in the United States to confer with Champion officials on conditions in their respective territory.

Guillemon Returns

Marcelle Guillemon, vice-president of the Renault Automobile Co. of Paris, who has been in this country for some time, sailed Tuesday aboard the S. S. France. He is accompanied by Andre de la Paulle, general manager of the company in America, with Mrs. de la Paulle.

Holley Names Kinstler

L. L. Kinstler, formerly manager of the wheel division, Michigan Steel Castings Co., has been appointed manager of the brake drum division of Holley Permanent Machines, Inc.

Olds Names Preston

R. P. Preston, who has been connected with the Oldsmobile-Viking parts and service department for some time, has

been named service promotion supervisor of the Olds Motor Works, it was announced by C. R. Todd, general parts and service manager. Prior to coming with Olds, Mr. Preston was with Chevrolet for eight years.

Krieger Returns to Durant

M. H. Krieger, whose resignation as factory manager of Durant Motors, Inc., was announced July 16, is back with the Durant corporation in the same capacity under the new group of executives headed by William C. Durant, it was announced here by factory officials.

Mr. Krieger has been with Durant Motors for the past nine years, having been works engineer for one year and factory manager since 1922. His name has been connected with the automobile industry for the past 25 years. Before coming with Durant he was with the Olds Motor Works in various capacities, from pattern maker to division superintendent and works engineer, for 16 years.

Mr. Krieger was one of the first men to be placed on the Durant payroll in Lansing, having started with the company before the first plant was built. He has served Durant steadily since 1921 and on July 16 his resignation came as a surprise in automobile circles.

Tipper and Murray Sail

Harry Tipper, general sales manager of General Motors Export Co., sailed Aug. 26 on the S. S. New York for a trip to Europe. He is accompanied by Mrs. Tipper and their three daughters.

William T. Murray, representative of the overseas department of the Reo Motor Car Co., is also sailing on the New York for Europe.

Elcar Appoints Haynes

E. C. Haynes, a pioneer of the automobile industry and until recently sales manager of the Holmes-Elcar Co. of Chicago, has been promoted to the post of vice-president of the Elcar Motor Co., Elkhart, Ind.

Chrysler Names Rupprecht

B. A. Rupprecht has been named to head Division No. 4, which includes Chicago, Minneapolis, Omaha and Kansas City, by J. W. Frazier, general sales manager of the Chrysler Sales Corp.

Curtiss-Wright Names Hughes

Earl E. Hughes has been appointed advertising and sales promotion manager of the Curtiss-Wright Corp.

Parts Makers' Index is Poor During July

M. & E. A. Reports Decrease in Their Business

NEW YORK, Aug. 26—Manufacturers of parts and equipment for the automotive industry experienced a rather inactive month during July, according to the index figures on their business prepared by the Motor and Equipment Association.

Manufacturers of original equipment showed an index for the month of 83 as compared with 119 in the previous month and with 205 in July of last year. This, of course, is accounted for by the fact that August car production is normally rather light and the decline this year is partially seasonal, while the comparison of last year is hardly just in view of the abnormal production of last year.

Service parts and service equipment have maintained more nearly an even figure with indices for July of this year at 127 and 115, respectively. These compare with 131 in June and 152 in July of last year for service parts, and with 128 in June and 170 in July of last year for service equipment.

Accessories also show a comparatively minor decrease at 65 for July as compared with 71 in June and 92 in July of last year.

Grand index for the entire industry for July was 88 as compared with 116 in June and with 188 in July of last year. This decline was largely accounted for by the decrease in business done by original equipment manufacturers. These index figures are based on business done in January, 1925, as 100.

Automotive wholesalers show an increase in business done during July as compared with June, although they still fall somewhat short of July of last year. Based on January, 1928, as 100, wholesalers showed an index of 113 in July of this year as compared with 109 in June and with 132 in July of last year. In the face of the increased business done in July, wholesalers showed a decrease in accounts receivable indicating an improved trend in collections on the part of this branch of the industry.

Grahams Are Hosts

The three Graham brothers—Joseph B., Robert C. and Ray A.—came "home" recently to the town of Washington to be host to the people of southern Indiana at a three-day farm show staged at the 5000-acre Graham model farms.

Apex Appoints Frillman

The Apex Machine Co., Dayton, Ohio, has announced the appointment of C. W. Frillman as manager in charge of sales.

Steel Markets Shaded Higher by New Inquiries

Increase in Automotive Demand is Anticipated

NEW YORK, Aug. 28—Evidence that some automotive consumers of steel are contemplating moderate stepping up of their operating schedules after Labor Day was forthcoming this week in the form of a larger number of inquiries and, to some extent, of releases. Strip mill operations in the Mahoning Valley were at a shade higher rate.

Sheet demand continues light, but dullness has not further impaired operations which, on the whole, are at about one-half of capacity. Automotive inquiry for wire and wire products has been fair of late, in fact, takings of manufacturers' wire by automotive buyers have been running ahead of those by most of the other outlets of drawers.

The market is strictly nominal, all ordinary quotations being subject to concessions when tonnages and specifications are in the least attractive. Most of the business in full-finished automobile sheets is of small lot caliber, with the hour when the material will be shipped more of a consideration in the placing of these orders than the price which continues at 3.60 cents, Pittsburgh.

When light plate mills come into competition with rolling mills on certain gages of blue annealed sheets, the 2 cents base price is usually subject to concessions which is not so frequently the case with the 2.15 cents base price on the 13 gage material. Common black sheets frequently come in for as low a price as 2.40 cents, Pittsburgh, when extras for special finishes are involved.

Wide hot-rolled strip is quoted at 1.65 cents, Pittsburgh, with the cold-rolled named at 2.35 @ 2.45 cents, Pittsburgh or Cleveland. Steel bars are generally down to 1.60 cents, Pittsburgh wide cold-finished bars continuing to be quoted at 2.10 cents, Pittsburgh, or other basing points, but subject to concessions in round lots. Ford Motor Co. figured this week as an important factor in the structural steel market with inquiries for 6000 tons.

Pig Iron—Blast furnace representatives report broader inquiry from foundries and a better market tone all around. The Michigan price of \$18 for Lake furnace foundry and malleable continues in force. Valley quotations are \$18 for foundry and \$18.50 for malleable, f.o.b. furnace.

Aluminum—Remelted aluminum has been selling in Detroit at extraordinarily low prices, the 98 @ 99 per cent grade being offered to foundries at 18½ cents with secondary No. 12 offered at as low as 14 cents. Prices for virgin metal remain unaltered.

Copper—A good many consumers have contracted for sufficient metal to cover their needs over the year's remainder. While nominally quoted at 10½ @ 11 cents, delivered Connecticut, and 10½ @ 11½ cents, delivered Middle West, metal at below 11 cents is difficult to find, and the inside of the price range represents bargain hunters' idea of what they feel like paying rather than offers by producers.

Automotive Industries

Hudson Names Butler Motors

DETROIT, Aug. 28—Hudson Motor Car Co. announces Butler Motors, Inc., as its new distributor for Chicago and vicinity. This change is to take immediate effect. Present Hudson and Essex dealerships are to remain undisturbed.

Autocar Gets Dividend

ARDMORE, PA., Aug. 28—Directors of the Autocar Co. have declared a quarterly dividend at the rate of 8 per cent per annum on the preferred stock, payable Sept. 15, 1930, to holders of record Sept. 5, 1930.

Buhl Names Lanphier

DETROIT, Aug. 26—Maj. Thomas G. Lanphier, former commandant at Selfridge Field, was recently named general sales manager for the Buhl Aircraft Corp., Marysville, Mich., according to an announcement by Lawrence D. Buhl, president.

McAler Net Income Is \$3.35 a Share

DETROIT, Aug. 18—C. H. McAler Mfg. Co. has reported net income of \$167,831 for the six months ended June 30, equivalent to \$3.35 per share on the 50,000 shares of common stock outstanding. This compares with only \$26,649 in the corresponding period of 1929 and with \$58,886 for the entire year 1929.

Dumped Fuel Hurts Toronto Market

TORONTO, ONT., Aug. 19—The dumping of inferior gasoline by United States companies into the Canadian market has severely hit local oil refineries, it is reported. Investigating complaints, Mayor Bert S. Wemp has found, it is said, that local refineries have been forced to lay off from 25 to 90 men because of the dumping of this oil.

G.M.A.C. Names Leach

NEW YORK, Aug. 27—Wade H. Leach has been appointed vice-president of General Motors Acceptance Corp. and will devote the major part of his time in contacting with General Motors manufacturing divisions.

Mr. Leach has been connected with General Motors for some time, acting as assistant to E. T. Strong when he was general sales manager of Buick and becoming a member of Mr. Sloan's staff in 1925.

Martin Trailer Gets Receiver

WESTFIELD, MASS., Aug. 26—N. Seelye Hitchcock of Easthampton, Mass., has been appointed receiver for the Martin Trailer Co., of Westfield, Mass. Permission is given to continue the business. An endeavor will be made to reorganize the company.

National Air Races Attract Big Crowds

Continued From Lead News Page

Wiley Post, of Oklahoma City, in a Lockheed-Vega won the Los Angeles-Chicago Derby. His elapsed time was 9:09:04. Art Goebel finished second, and Lee Schoenair was third. Col. Roscoe Turner, of Hollywood, who finished fifth, came down on the airport Tuesday afternoon with an empty gas tank. His Hornet motored Lockheed express burned 535 gallons of gas in the 10 hours he was in the air.

Results of some of the other contests follow:

J. Wesley Smith of Philadelphia, Pa., won the men's Class B Derby from Hartford, Conn., in a Monocoupe, Warner-Scarab powered. His time was 8:24:37.1.

National Guard Liberty Engine trophy was won by Lieut. W. V. Newhall, in a Douglas observation plane, averaging 129.76 miles per hour.

Arthur Killups, La Grange, Ill., won the men's class A Atlantic Derby in a Waco. His time was 11:53:23.1.

Women's Class B Dixie Derby was won by Phoebe Omlie, of Moline, Ill., in a Monocoupe Warner SC; Martie Bowman of Hempstead, L. I., was second in a Fleet Kinner K5 powered. Miss Omlie's time was 11:42:21.

Goodyear Reduces Force

AKRON, Aug. 27—Officials of the Goodyear Tire & Rubber Co. today announced a 20 per cent reduction for all remaining employees. The adjustment which becomes effective Sept. 1 represents an effort to bring down administrative costs more nearly in line with the total volume of business for the year, according to President Paul W. Litchfield.

Announcement that the salaried forces would be reduced follows unconfirmed reports that the Akron plant will curtail tire production from 144,000 tires daily to a 30,000 schedule.

The 20 per cent cut in personnel is an effort to bring down the administrative cost, and the downward salary adjustments parallel similar adjustments in the factory due to the rotation system, Mr. Litchfield said.

Bellanca Plane Tested

WILMINGTON, DEL., Aug. 26—Completion of tests leading to the Approved Type Certificate on the Bellanca Airbus, 14-passenger transport plane, has been announced by the Bellanca Aircraft Corp., New Castle, Del. The plane will immediately be shipped to Chicago and may possibly compete in the National Air Races and the Ford Reliability Tour.

L. A. Young Declares

DETROIT, Aug. 26—L. A. Young Spring and Wire Corp. has declared regular quarterly dividend of 75 cents, payable Oct. 1, record Sept. 15.

August 30, 1930

Here and There in the Automotive World



E. E. C. Mathis, head of the Mathis Automobile Works, Strasbourg, France, who has become a director of Durant Motors, Inc., under an agreement by which the latter will make a Mathis designed car

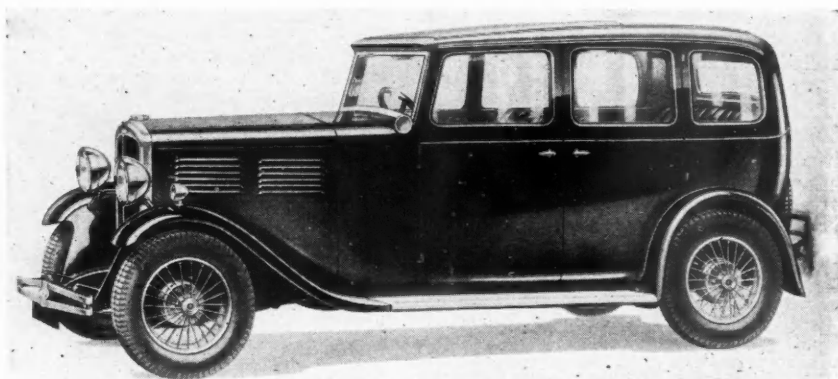


Oscar C. Kreis has been appointed consulting engineer for the Studebaker Corp. His former associations include Packard and Continental



Ernest W. Stephan has been appointed manager of branches for the Reo Motor Car Co. He formerly headed Reo's Philadelphia territory

The (British) Standard six shown at the right is now the cheapest six-cylinder car on the British market. See p. 323.



Bellanca is testing a new eight-passenger transport plane known as the "Airbus," shown at the left

Tire Output for 6 Mos. Valued at \$275,114,000

Figure is Below First
Half of Last Year

NEW YORK, Aug. 25—Tires and tire sundries produced during the first half of the current year reached a value of \$275,114,000, as compared with \$372,927,000 for the first half of last year, according to figures compiled from the 1930 questionnaire of the Rubber Manufacturers Association.

These are out of a total of rubber manufactured goods reaching a value of \$420,936,000 during the first half of the current year, as compared with \$539,960,000 in the first half of last year. During the second quarter tires and tire sundries reached a value of \$146,275,000 out of a total of \$220,086,000.

Crude rubber consumed in the production of tires and tire sundries during the first half amounted to 164,332 tons, as compared with 313,159 tons during the corresponding period last year.

Total rubber consumed by the industry was 196,731 tons, as compared with 246,429 tons in the corresponding period last year.

Rubber consumed in the production of tires and tire sundries during the second quarter was 87,072 tons out of a total consumed by the industry of 103,250 tons.

Crude rubber on hand at the end of the second quarter was 138,768 tons.

Federal-Mogul Corp. To Increase Capital

DETROIT, Aug. 25—The Federal-Mogul Corp. stockholders have voted to increase the authorized capitalization from 150,000 shares of common stock to 180,000 shares, it was announced today by H. Gray Muzzy, president.

This increase was voted to provide means for expansion through acquisition of additional units. One such purchase, that of Watkins Mfg. Co., has just been completed.

The corporation also reported net earnings for the first six months of 1930, after all charges including Federal taxes, of \$131,163. This is equivalent to more than \$1 per share on the 130,000 shares of common stock outstanding on June 30, 1930, and compares with \$260,373 or \$2 per share on the same capitalization for the first six months of 1929.

Sets Outboard Record

CHICAGO, Aug. 25—A new official world's outboard speed record of 49.723 miles an hour was made recently by Ray Pregenzer, Jr., Antioch, Ill., at Fox Lake, when he drove his Century Hurricane in a six-mile trial run.

Reo Declares Dividend

DETROIT, Aug. 23—Reo Motor Car Co. has declared a regular quarterly 20-cent dividend, payable Oct. 1, to stock of record Sept. 10, on common stock and voting trust certificates.

It has also declared a 2 per cent cash dividend on common stock, payable Oct. 1 to shareholders of record Sept. 10.

Carter Leases Detroit Plant

DETROIT, Aug. 25—The George R. Carter Co., Connorsville, Ind., manufacturer of automobile trimmings, braid and bindings, and a subsidiary of the Vogt Mfg. Co. of Rochester, N. Y., has signed a lease and contract of purchase on a two-story factory building here and it is expected that operations of moving from Connorsville will be completed by Sept. 10. The building contains about 35,000 sq. ft. of floor space. The company has expansion plans in project awaiting the return of normal business.

Imperial Oil Sales Gain

TORONTO, ONT., Aug. 25—Sales of gasoline by the Imperial Oil Ltd., for first six months of 1930 were 4 per cent ahead of like 1929 period, according to a statement by C. O. Stillman, president. Sales of lubricating oils in the motor division were about equal to those of the corresponding period, but in the industrial division they were 7 per cent lower.

To Inspect Maryland Cars

BALTIMORE, MD., Aug. 28—E. Austin Baughman, Maryland Commissioner of Motor Vehicles, with headquarters in Baltimore, has announced that every motor vehicle in the state must be inspected during November and officially approved as safe before 1931 license tags will be issued. A total of 1200 inspection stations throughout Maryland will carry on the work and check brakes, lights, steering gear, windshield wipers, and other safety devices. If a machine has not been inspected and approved the Commissioner has the power to refuse to issue license tags.

Budd Wheel Declares

PHILADELPHIA, Aug. 25—At the meeting of the directors of the Budd Wheel Co., last week, the regular quarterly dividend of \$1.75 per share, with an extra of 75 cents per share, was declared upon the 7 per cent first preferred stock of the company. The regular quarterly dividend of 25 cents per share on the common stock was also declared, both dividends payable Sept. 30 to stockholders of record Sept. 10.

The company produced 4,107,630 units during the first six months of 1930. This compares with 4,517,705 units produced during the first six months of 1929.

Caterpillar to Begin Plant Removal

San Leandro Units to
Shift About Sept. 1

PEORIA, ILL., Aug. 25—Transfer of office departments of the San Leandro, Calif., departments of the Caterpillar Tractor Co. to this city will be under way by Sept. 1, officials have announced, as the first step in the program to centralize executive departments at the plant here.

The advertising department, headed by Walter H. Gardner, general advertising manager, will be the first moved and will be followed by the traffic and other departments, arranged to avoid serious interruption in administration operations.

Despite seasonal slumps in other industrial plants, the local factory has continued at almost capacity until last week when a considerable reduction was made. This is only a temporary readjustment, plant executives stated, and they anticipate that full forces will soon be reemployed.

The Russian orders, estimated at \$5,000,000, will be considerably in excess of that amount according to later advices and in addition to the regular production at the plant will keep the Peoria factory operating at full force.

Rubber Market Quiet

NEW YORK, Aug. 25—The crude rubber market showed some fluctuation last week but continued fairly quiet with prices receding from an earlier advance, according to F. R. Henderson Corp.

Stocks in London increased last week to 180,224 tons, with Liverpool stocks up to 29,048 tons.

Arrivals of crude rubber at all ports of the United States during the first three weeks of August were estimated at 26,500 tons.

Announce Race Officials

ALTOONA, PA., Aug. 25—Officials for Altoona's 200-mile speed classic Labor Day were announced last night at speedway offices.

E. Von Hamback, Detroit, who was injured when struck by a car during the Flag Day event, will act as special representative for the contest board of the American Automobile Association.

Jack Rose, Pittsburgh, starter here for the past few years, will again wave the flags. J. P. Smith, Buffalo, will act as steward, and George H. Fearons, Jr., of New York City, a member of the AAA contest board, will be referee. "Kim" Howell, New York, heads the technical committee.

Motor Products Declares

DETROIT, Aug. 26—Motor Products Co. has declared regular quarterly dividend of 50 cents, payable Oct. 1 to stockholders of record Sept. 20.

Morzik Wins German Light Plane Contest On BFW Plane Equipped With Argus Engine

By Edwin P. A. Heinze

BERLIN, Aug. 18 (by mail)—On July 20, 60 light planes started at the Tempelhof airport in Berlin for an air tour of Europe touching nine countries extending 4700 miles. Originally 101 planes had been entered for the contest, which was this year organized by the Aero Club of Germany since the German Morzik on a BFW plane was last year's winner.

The planes were classified in two categories according to their weight with full equipment less passengers and pilot, the limits being 705 lb. for the small and 881 lb. for the larger planes. The speeds were limited by the regulations to 96 m.p.h. for the small and 109 m.p.h. for the large class.

The idea underlying this contest was to foster the construction of eminently reliable and well-equipped touring planes for private owners; less weight being placed on utmost speed than on comfort, safety and reliability. For maintenance of the given maximum average speeds 195 points were credited to the entrants, and for reliability on the air tour 75 points were awarded. All important parts of the airplanes were either sealed or marked so that they could not be secretly exchanged en route.

The tour included a crossing of the English Channel between Calais and Folkestone and return and of the Pyrenees mountain range between France

and Spain, which has an altitude of some 9000 ft. The tour included 27 compulsory stops.

The competing machines comprised 30 German, 12 Polish, 7 British, 6 French, 3 Spanish and 2 Swiss entries.

The British De Havilland Moth machines, in this air tour, showed quite remarkable qualities of stamina and continually led the whole field.

There was only one American plane in this competition. It was a Mono-Special with a 110 hp. Warner motor piloted by J. E. Carberry.

The first to arrive back at Tempelhof on July 27 were Broad and Butler followed by the German Poss on an Argus powered Klemm plane. Butler, had to be disqualified for fitting a new propeller at Posen in Poland, which he had not carried with him all the time as was prescribed by the regulations.

After the air tour, in which 23 planes had to give up or were disqualified, it was evident that the contest was one between Great Britain and Germany, with the British team leading by a few points. On Aug. 1, however, the technical tests in the Staaken aerodrome of Berlin began and these brought a complete reversal of results.

In these tests the German machines were able to gain much ground over against the heavier and larger British competitors, especially because they were easier to dismount.

Final Standing of Contestants

1st Morzik on a BFW plane with Argus engine.....	427 points
2nd Poss on a Klemm plane with Argus engine.....	423 points
3rd Notz on a Klemm plane with Argus engine.....	419 points
4th Miss Spooner, Moth-Gipsy.....	416 points
5th Polte on a BFW plane with Siemens engine.....	409 points
6th Carberry on Mono-Special with Warner engine.....	405 points
7th von Massenbach on BFW-Siemens.....	399 points
8th Capt. Broad on Moth with Gipsy engine.....	395 points
9th Kruger on BFW with Argus engine.....	394 points
10th Dinort on BFW with Argus engine.....	385 points

Sears Rescinds Tire Price Boost

CHICAGO, Aug. 23—Sears, Roebuck & Co. have rescinded the increase in tire prices made in their fall and winter general catalog, and will continue the prices quoted in the summer sale catalog after the sales period ends Aug. 31, J. H. Westrich, manager of the company's tire department, announces.

The tire prices in the fall and winter catalog average about 2 per cent higher than the summer sale levels. A continuance of the present prices, it is explained, is made possible by lower rubber costs.

Oklahoma Revenue Drops

OKLAHOMA CITY, OKLA., Aug. 25—Collections of the automobile license tax for July totaled \$106,285.20, bringing the figure for seven months of

1930 to \$6,359,324.58. July collections topped almost \$50,000 from collections made during 1929.

Plan Garage Exhibition

WASHINGTON, Aug. 25—An international garage exhibition will be held in Berlin, Germany, from May 9 to Aug. 9, 1931, according to Commercial Attache Douglas Miller, in a dispatch to the Department of Commerce. This exhibition will be part of the German Building Exposition. Displays will be divided into two parts—German and foreign.

Illinois Begins Building

CHICAGO, Aug. 25—The Illinois Steel Company has begun construction of another of the new industrial buildings being erected at its South Chicago plant.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

NEW YORK, Aug. 27—There was a very slight improvement in the tone of general trade last week, with the buying of fall goods on the increase. Retail sales were stimulated by special sales of goods at attractively low prices. In a few sections there was a very moderate increase in industrial activity. Wholesale buying was restricted to immediate needs. On the whole, there was no marked improvement in any part of the country.

CAR LOADINGS

Railway freight loadings for the week ended Aug. 9 totaled 904,157 cars, which marks a decline of 187,996 cars below those in the corresponding period last year and a decline of 140,111 cars below those in the corresponding period in 1928.

CONSTRUCTION AWARDS

Construction contracts awarded in 37 Eastern States during July, according to the F. W. Dodge Corporation, amounted to \$367,528,400, as against \$652,436,100 in the corresponding period last year.

CRUDE OIL OUTPUT

Average daily crude oil production for the week ended Aug. 16 amounted to 2,463,550 bbl., as against 2,480,350 bbl. for the preceding week and 2,941,550 bbl. a year ago.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices for the week ended Aug. 23 stood at 82.8, as against 83.8 the week before and 83.1 two weeks before.

BANK DEBITS

Bank debits to individual accounts outside of New York City for the week ended Aug. 20 were 21 per cent below those in the corresponding period last year.

STOCK MARKET

The stock market during the earlier part of last week showed considerable strength, but weakness developed in the middle of the week and continued during the remainder of that period.

BROKERS' LOANS

Brokers' loans in New York City during the week ended Aug. 20 declined \$27,000,000, bringing the total down to \$3,128,000,000, as against \$6,085,000,000 a year ago.

FEDERAL RESERVE STATEMENT

The consolidated statement of the Federal Reserve banks for the week ended Aug. 20 showed increases of \$5,000,000 in holdings of discounted bills and of \$5,000,000 in holdings of bills bought in the open market, while there were decreases of \$4,000,000 in holdings of Government securities and \$8,000,000 in total reserves. The reserve ratio on Aug. 20 was 81.9 per cent, as against 82.0 per cent a week earlier and 83.1 per cent a fortnight ago.

July Output Slumps; Nears December Low

Department of Commerce Figures Show 262,363 Production

WASHINGTON, Aug. 26—The result of the closing down either partially or entirely of a large portion of the automotive industry was seen in the July production figures of 262,363, the lowest since last December, with a total of 120,007 motor vehicles. The July output showed a decline of 73,114 units under June but since important units have resumed operations on a larger scale the August production is expected to show a substantial gain over that of July.

The July production was made up of 222,459 passenger cars, 39,663 trucks and 241 taxicabs, as compared with 289,245 passenger cars, 45,773 trucks and 459 taxicabs in June. In the first seven months of the current year the output of motor vehicles in the United States totaled 2,481,911, as against 3,726,283 in the corresponding period of last year.

Passenger car output in the first seven months of 1930 was 2,117,465 units as against 3,182,241 in the corresponding period of last year, and truck production totaled 359,684 as compared with 526,355.

The production of motor vehicles in Canada in July totaled 10,188 as against 15,090 in June and included 8556 passenger cars and 1632 trucks. In the first seven months of 1930 motor vehicle production in Canada totaled 120,873 as against 205,822 in the corresponding period of last year.

Oil Men to Form Transport Group

TULSA, OKLA., Aug. 25—Formation of a Division of Production Motor Transport Committee is on the program for the meeting of the American Petroleum Institute Central Group on Automotive Transportation in the Mayo Hotel here Sept. 1, 2 and 3. Among the speakers will be: C. E. Dawson and M. R. Schon of General Motors Corp., Detroit; John Mack, Chrysler Corp., Detroit; Arthur Scaife, White Truck Co., Cleveland, and a representative of the Mack International truck engineering department.

U. S. Tire Plans School

DETROIT, Aug. 26—Opening of a tire repair school offering 4 weeks of free instruction to all repair men numbered among its dealer organization is announced by the tire department of the United States Rubber Co.

The school is located in the executive building at Detroit headquarters and is under the immediate supervision of Charles Samson, manager of the accessories and repair materials division.

New Standard (English) Models Include Cheapest Six Car on British Market

LONDON, Aug. 15 (*by mail*)—The Standard Motor Co., Coventry, England, is the first British passenger car maker to announce and commence delivery of 1931 models. A new type has been introduced which, for the time being at all events, has the distinction of being the cheapest six-cylinder car among British productions. Priced at £245 with a four-passenger fabric sedan body, it has a 16 hp. side valve engine of just over two liters (2052 cc.), three-speed gearset and wire wheels. The wheelbase is 109 in. and the track 48 in.

A "special" model of this type is £275, which higher price includes a four-speed twin-top gearset in which the silent third is afforded by double helical gears; this model also has furniture hide upholstery covering, sliding roof, rear armrests, safety glass throughout, luggage carrier at the rear, bumpers, plated lamps and various other additional items of equipment. A metal sedan on the same chassis with the "special" equipment is £285.

The Standard company is continuing the so-called 9 hp. model, which has a four-cylinder side valve engine of 1287 cc. and compares in piston displacement and power with most British cars rated at 12 hp. This has been one of the most successful British cars of 1930 from the sales standpoint; production has been considerably in excess of that of 1929, and the planned output for 1930 was finished before the end of July instead of six weeks later; this is all the more notable because the 1930 program of production was conceived two or three months before the general slump

in world trade in the autumn of 1929.

The 1930 demand for the Standard Nine has therefore exceeded the maker's expectations. The new model is a greatly improved car, though the price of the basic type (£215) is unchanged. It has a new radiator which is higher and deeper, with curved sides narrowing to the bottom and central vertical plated strip; the car is far more imposing and attractive in appearance; the seating is 3 in. wider; Marles cam steering and fingertip controls are fitted; battery ignition displaces the magneto and spiral bevel final drive is used instead of the worm drive used by Standard since pre-war days. In this case also a "special" model is offered with a four-speed twin-top gearset and other additional features of equipment, priced £245 for the fabric sedan with sliding roof, while a "popular" sedan with fixed roof is £195.

There is a striking similarity between the 1931 9 hp. four and the new 16 hp. light six. Apart from the engine and the chassis frame, the two models are almost identical throughout; with its 109 in. wheelbase in place of 99 in., the six takes the same range of bodies as the four; this interchangeability obviously accounts for the low price on British standards of the six-cylinder type.

A third model is a 20 hp. (2½ liter) six with a wheelbase of 118 in. and 56 in. track, and twin-top four-speed gearbox. Only one body type is offered, a genuine Weymann-built sedan with metal paneling to the waistline and fabric superstructure. This is a high-grade job priced at £385.

General Motors Zones Canadian Sales Units

OSHAWA, ONT., Aug. 25—Expansion of the General Motors of Canada Ltd. sales organization involving the establishment of eight important zone offices across Canada is announced by J. H. Beaton, general sales manager. Opening of a zone office in Montreal during August to handle the business of Quebec province and part of eastern Ontario is contemplated, according to the release. Other zones will have headquarters at Vancouver, B. C.; Calgary, Alta.; Regina, Sas.; Winnipeg, Man.; London, Ont.; Oshawa, Ont., and St. John, N. B. Each will have the function of a head office in its particular district. The new zone office organizations will each direct sales of Chevrolet, Pontiac, Marquette, Oldsmobile, Oakland, McLaughlin-Buick, Viking, LaSalle and Cadillac cars in their territory. Previously

each car division was handled by a separate sales organization. The combined operation will include not only sales, but also parts and service.

The Montreal zone personnel, consisting of men well qualified by long experience with General Motors and familiar with the province of Quebec dealer requirements, is as follows: zone manager, E. A. Everson; assistant zone managers, N. J. E. Catudal and W. A. MacLean; dealer finance and business management manager, E. C. Collins; office manager and car distributor, H. Harwood; parts and service manager, H. C. Harper; sales promotion manager, E. Levesque.

Nash to Resume Sept. 1

CHICAGO, Aug. 25—Nash Motors Co. will resume production at Kenosha around Sept. 1 with a force of 500 to 600 men, which will gradually be added to until full production is attained, officials have announced.

Bendix Aviation Earns \$779,255 in 6 Mos.

No Comparison Available
For Last Year's Period

CHICAGO, Aug. 25—Bendix Aviation Corp. has reported net earnings after all charges, including Federal taxes, for the quarter ended June 30 of \$779,255 or 37 cents a share on the 2,097,454 shares of stock outstanding. For the first six months net after all charges was \$1,530,937 or 73 cents a share on the stock. No comparison with a year ago is available because of the change in the corporate structure incident to the many acquisitions and consolidations in which the Bendix Aviation Corp. has participated.

Vincent Bendix, president, in issuing the earnings statement, said: "These earnings are after substantial write-offs incident to the dismantling of the Stromberg Motor Devices Chicago plant and moving it to a new and modern plant in South Bend.

"Progress has been made in the reduction of operating expense and increased efficiency. A saving of \$40,000 monthly in overhead has recently been effected and other steps are being taken which should further reduce our costs."

Motorboat Registrations Show Increase

WASHINGTON, Aug. 25—The aggregate of numbered motorboats in the United States increased from 241,040, as of Dec. 31, 1929, to 243,702, as of June 30, 1930, according to the Bureau of Navigation of the Department of Commerce. Numbering by years from 1919 (June) to 1930 (June), follows:

June 30, 1930	243,702
Dec. 31, 1929	241,040
Dec. 31, 1928	230,582
Dec. 31, 1927	219,575
Dec. 31, 1926	208,037
Dec. 31, 1925	198,636
Dec. 31, 1924	186,441
Dec. 31, 1923	173,307
Dec. 31, 1922	159,701
Dec. 31, 1921	148,482
Dec. 31, 1920	130,826
Dec. 31, 1919	110,791
June 30, 1919	91,779

Alcoa Plants More Active

ALCOA, TENN., Aug. 26—With the curtailment of the Edgewater plant in Edgewater, N. J., of the Aluminum Co. of America, increased production has started at the plants in Alcoa. Already one additional shift has been put on and if orders continue other shifts will be added, according to the management.

Construction on the new alloy plant building continues ahead of schedule. Foundations for the machinery are now being placed.

Timken Axle Declares

NEW YORK, Aug. 25—Timken Detroit Axle Co. has declared regular quarterly preferred dividend of \$1.75 payable Sept. 2 to stockholders of record Aug. 20.

+ + CALENDAR + + OF COMING EVENTS

SHOWS

Lwow, Poland, Sample Fair...September
London, England, Olympia Show...October
National Roadbuilders' Show and Convention, St. Louis...Jan. 10-16

CONVENTIONS

Fifth International Air Congress, Auspices Royal Aero Club, The Hague, Holland...Sept. 1-6
American Chemical Society Fall Meeting, Cincinnati...Sept. 8-12
Eastern States Exposition, Springfield, Mass...Sept. 14-20
A. S. M. E. Machine Shop Practice Meeting, Chicago...Sept. 22-24
A. S. M. E. Iron and Steel Division Meeting, Chicago...Sept. 22-26
American Welding Society Meeting, Chicago...Sept. 22-26
Society for Steel Treating Meeting, Chicago...Sept. 22-26
American Gear Manufacturers Association, Semi-Annual Meeting, Hotel Clifton, Niagara Falls, Ont., Canada...Sept. 29-Oct. 1
National Safety Council, Annual Safety Congress, Pittsburgh...Sept. 29-Oct. 4
A. S. M. E. Petroleum Division Meeting, Tulsa, Okla...Oct. 6-8
Sixth International Road Congress, Washington, D. C...Oct. 6-11
Exhibition—American Roadbuilders Association, Washington, D. C...Oct. 6-11
Society of Automotive Engineers, Production, Book-Cadillac Hotel, Detroit...Oct. 7-8
A. S. M. E. General Meeting, French Lick Springs...Oct. 13-15
Society of Industrial Engineers, Washington, D. C...Oct. 15-17
Society of Automotive Engineers, Transportation, Pittsburgh...Oct. 22-24
Motor and Equipment Association, Convention, Cleveland...Nov. 10-14
N.S.P.A. Convention, Cleveland, Ohio...Nov. 17-21
First International Aerial Safety Congress, Paris, France...Dec. 10-23
Society for Steel Treating (National Western Metal and Machinery Exposition), San Francisco...Feb. 16-20

SALONS

Chicago, Drake Hotel...Nov. 8-15
New York, Commodore Hotel...Nov. 30-Dec. 6
Paris, France...Oct. 2-12
Prague, Czechoslovakia...October
Paris, France, Salon (Commercial Vehicles)...Nov. 13-23
Brussels, Belgium, Salon...Dec. 6-17

RACES

Italy (Grand Prix)...Sept. 7
France (Grand Prix)...Sept. 21

New Yellow Cabs Carry Lower Prices

Appearance Resembles
Last Year's Models

PONTIAC, Aug. 25—A new series model O-10 Yellow Cab at reduced prices was announced today by Paul W. Seiler, president and general manager of the General Motors Truck Co.

The new series O-10, according to the announcement, closely resembles in appearance the model introduced last year.

The six-cylinder Buick engine will continue to be used.

Other features include a double disk clutch designed for taxicab use. A Brown-Lipe transmission is used and both front and rear axles are Timken. Four-wheel brakes of either mechanical or hydraulic type are optional.

Has Floating Service Station

CHICAGO, Aug. 25—A floating service station to supply yachts and power boats on Lake Michigan has been placed in operation by the Sinclair Refining Co. The supply ship will carry 5000 gal. of aircraft, high compression and regular gasoline as well as Diesel fuel and lubricating oils. The ship is a 54-ft. vessel driven by a four-cylinder Diesel engine of 70 hp. built by the Burger Boat Co. of Manitowoc, Wis.

To Test Tank Trucks

NEW YORK, Aug. 26—Aluminum alloy tanks, designed for use in transporting gasoline and other flammable liquids by motor trucks, will be given exhaustive tests at New Kensington, Pa., on Friday, Sept. 5, under the joint sponsorship of the National Fire Protection Association Committee on Flammable Liquids, the Aluminum Co. of America and the American Petroleum Institute Sub-Committee on Testing Aluminum Alloy for Tank Truck Tanks.

Illinois Increases Road Work

SPRINGFIELD, ILL., Aug. 25—As part of the state's program for drought relief, an additional \$4,000,000 expenditure upon state highways has been authorized for this year and bids will be received Sept. 10 upon 159.12 miles of paving, 12.54 miles of grading and 13 bridges. Frank T. Sheets, chief highway engineer, stated that the additional work will bring the 1930 highway expenditures to more than \$37,000,000.

Reo Promotes Stephan

DETROIT, Aug. 25—Ernest W. Stephan, until recently zone manager, Philadelphia, has been appointed manager of branches of Reo Motor Car Co. He joined Reo eight years ago.

Viking Line Resumes

LANSING, Aug. 25—The Viking assembly line at the Olds Motor Works resumed operation on Monday of last week after being shut down for more than two months. Factory officials have denied all rumors that production of Vikings will be discontinued. They say the car is here to stay.

Pase is Franklin Distributor

NEW YORK, Aug. 25—William Pase, who has been Franklin dealer in Brooklyn for some time, has been appointed metropolitan New York distributor for Franklin, succeeding John B. Hulett, retired.